

Service Manual

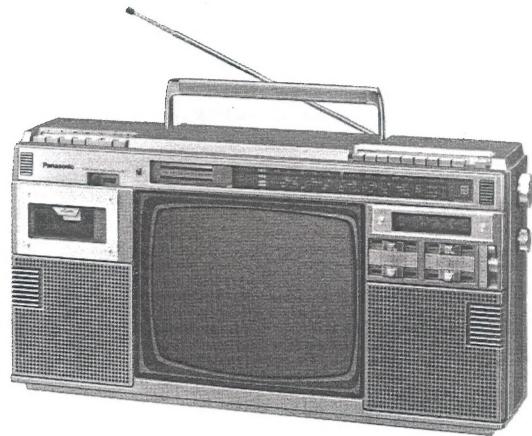
Black and White Television with Stereo Radio Cassette

TR-1200S

Chassis

No. 12B01-E

Main Manual



Specifications

Television

Power Source:	AC: 220V, 50Hz, DC: 12V
Power Consumption:	AC: 50W, DC: 19W
Antenna Impedance:	VHF/UHF/FM/SW Monopole antenna 75Ω
Receiving Channels:	VHF/UHF/FM/SW
Intermediate Frequency:	External antenna 75Ω
Integrated Circuit:	VHF 2-12ch UHF 21-69ch
Semiconductor:	Video: 38.9MHz
(with Radio and Cassette Recorder)	Sound: 33.4MHz
Nominal Anode Voltage:	11
Picture Tube:	38 Transistors
Speaker:	35 Diodes
Automatic Circuits:	1 H.V. Rectifier
Dimensions:	13.0KV (Zero Beam Current)
Weight:	310JHB4, 12inches, 90° Deflection
	2-Way 4-speakers System
	Woofer: 12cm x 2
	Tweeter: 3cm x 2
	Peak Automatic Gain Control
	Saw-Tooth Automatic Frequency Control
	Automatic Voltage Regulator
	Height: 32.6cm
	Width: 64.3cm
	Depth: 32.1cm
	12.7kg

Stereo Radio Cassette

Motor:	Mechanical governor motor
Frequency Response:	80Hz – 15KHz
Recording System:	AC bias
Operation:	Push button one-touch operation with Auto-Stop and mechanical pause
Tape Speed:	4.8cm/s. (1-7/8 ips.)
Program Time:	1 hour with C-60 cassette tape
Fast Forward and Rewind Time:	Approx. 120 seconds with C-60 cassette tape
Track System:	4 track 2 channel stereo recording and playback
Input:	MIC: sensitivity 0.25mV/applicable microphone impedance 200-600Ω
Output:	LINE IN: 420mV/50KΩ
	LINE OUT: 380mV/47KΩ
Radio Frequency Range:	EXT SP: 8Ω
	FM 87.5–108MHz
	LW 145–285KHz
	MW 525–1605KHz
	SW 5.9–18.0MHz
Sound Output:	5W + 5W (Max.)

Specifications are subject to change without notice.

 **Panasonic**

Matsushita Electric Trading Co., Ltd.

P.O. Box 288, Central Osaka Japan

CODE NO. FTD7909-004

CAUTION

The high voltage supply at the picture tube anode will give an unpleasant shock, but does not supply enough current to give a fatal burn or shock.

However, secondary human reaction to otherwise harmless shocks have been known to cause injury. Always discharge the picture tube anode to the receiver chassis before handling the tube.

Certain portions of the high voltage generating circuit are dangerous and extreme caution should be observed. The picture tube is highly evacuated and, if broken, glass fragments will be violently expelled.

WHEN HANDLING THE PICTURE TUBE, ALWAYS WEAR GOGGLES AND PROTECTIVE CLOTHING.

VORSICHT

Die Hochspannung der Bildröhrenanode genügt für einen unangenehmen Schlag, ist aber nicht hoch genug um Verbrennungen oder tödliche Schläge zu bewirken. Sekundäre Verletzungen als Folge harmloser Schläge sind jedoch vorgekommen. Vor Hantieren der Bildröhre sollte daher ihre Anode stets zum Empfängerchassis entladen werden.

Gewisse Abschnitte des Hochspannungskreises sind gefährlich; äußerste Vorsicht ist angebracht. Die Bildröhre steht unter Hochvakuum: beim Zerbrechen werden Glasstücke gefährlich umherfliegen.

BEIM HANTIEREN DER BILDRÖHRE IMMER SCHUTZBRILLE UND HANDSCHUHE TRAGEN!

ADJUSTMENTS

VERTICAL HEIGHT AND VERTICAL LINEARITY

- (1) These controls VR32 and VR33 should be adjusted simultaneously to give proper vertical size consistent with good vertical linearity.

Adjustment should be made to extend the picture limits approximately 3/6" (5mm) beyond the top and bottom edges of the mask.

TO ADJUST THE AGC PROPERLY

- (1) Set the channel selector to a station transmitting a strong signal.
- (2) Turn the R-F AGC control VR19 clockwise or counter-clockwise to the point where the snow noise disappears in the picture.
- (3) Check the reception on all channels.

AVR (AUTOMATIC VOLTAGE REGULATOR)

Connect a Volt meter across B+ supply line and chassis. Next make certain B+ supply voltage is +11.5V by adjusting the AVR control (VR71).

EINSTELLUNGEN

BILDHÖHE UND BILDLINEARITÄT

1. Die Regler VR32 und VR33 sollten gleichzeitig auf richtige Bildhöhe in Übereinstimmung mit guter Bildlinearität eingestellt werden.

Diese Einstellungen sollten so vorgenommen werden, daß sich die Bildgrenzen ca. 5 mm über den oberen und unteren Rand der Maske erstrecken.

RICHTIGE EINSTELLUNG DER SCHWUNDAUSGLEICHAUTOMATIK (AGC)

1. Den Kanalwähler auf einen Sender einstellen, der ein starkes Signal ausstrahlt.
2. Den HF-Schwundausgleichautomatikregler VR19 im oder entgegen dem Uhrzeigersinn so weit drehen, daß die weißen Flecken vom Bildschirm verschwinden.
3. Den Empfang auf allen Kanälen überprüfen.

AUTOMATISCHER SPANNUNGSREGLER (AVR)

Einen Spannungsmesser über die +B-Versorgungsleitung und das Chassis anschließen. Dann durch entsprechendes Verstellen des automatischen Spannungsreglers (VR71) sicherstellen, daß die +B-Speise-spannung +11.5 V beträgt.

ABLENKJOCHSTELLUNG

Das Ablenkjoch ist mit einer Klemme und Schraube am Hals der Bildröhre befestigt. Zum Einstellen des Jochs und Berichtigen der Bildschräge diese Klemme lösen. Nach dem Berichtigen der Bildschräge die Schraube wieder festziehen.

YOKE POSITION

The yoke is secured to the neck of the picture tube with a clamp and screw. To adjust the yoke and correct for picture tilt, loosen this clamp. Correct tilt and retighten the screw.

CENTERING

The picture centering device consists of two rings located at the rear of the yoke assembly. Each ring has a tab for ease of adjustment. The tabs should be rotated and moved towards or away from each other until the picture is properly centered on the screen of the picture tube.

HORIZONTAL WIDTH

Adjust the slug of coil (L403) to extend the picture about 13mm beyond the mask with the brightness control set to normal operating position.

-DISASSEMBLY INSTRUCTIONS-

REAR COVER REMOVAL

1. Remove 7 screws **A** as shown in Fig. 1.
2. Pull the rear cover toward you.

INDICATOR BLOCK REMOVAL

1. Remove the Radio tuning and TV tuning knobs from tuning shaft.
2. Remove 7 screws **B** as shown in Fig. 2.

CONTROL PANEL BLOCK REMOVAL

1. Remove the knobs on the front panel.
2. Remove 3 screws **C** as shown in Fig. 3.

TUNER BLOCK AND POWER BLOCK REMOVAL

1. Remove 2 screws **D** as shown in Fig. 4.

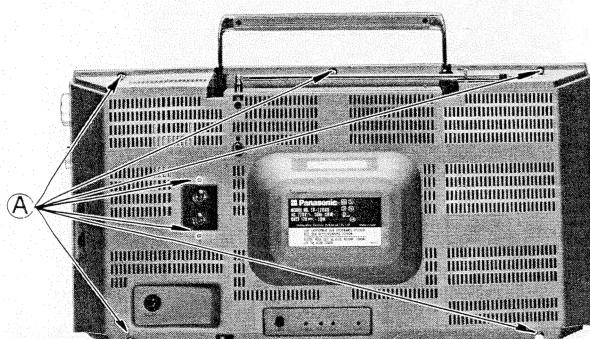


Fig. 1 Abb. 1

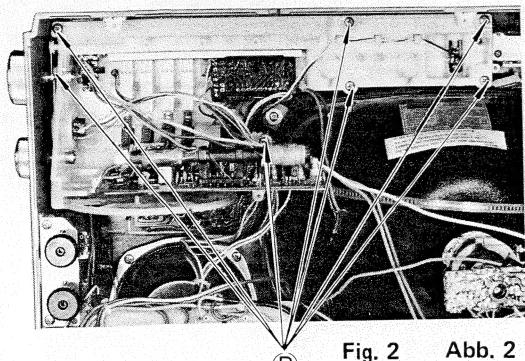


Fig. 2 Abb. 2

BILDSTANDSREGELUNG

Die Einrichtung für Bildstandsregelung besteht aus zwei Ringen, die sich auf der Rückseite der Ablenkjocheinheit befinden. Jeder Ring weist eine Lamelle auf, um die Einstellung zu erleichtern. Diese Lamellen sollten durch Drehen zueinander oder voneinander weg bewegt werden, bis das Bild richtig auf dem Schirm der Bildröhre zentriert ist.

BILDBREITE

Den Kern der Spule (L403) so einstellen, daß sich das Bild ca. 13 mm über die Maske erstreckt, wenn der Helligkeitsregler auf normale Betriebsstellung eingestellt ist.

-ZERLEGUNGS-ANLEITUNGEN-

ENTFERNEN DER RÜCKWAND

1. Die in Abb. 1 gezeigten 7 Schrauben **A** entfernen.
2. Die Rückwand nach vorn ziehen.

ENTFERNEN DES ANZEIGEBLOCKES

1. Den Radio- und TV-Abstimmknopf von der Abstimmachse entfernen.
2. Die in Abb. 2 gezeigten 7 Schrauben **B** entfernen.

ENTFERNEN DES BEDIENUNGSFELDBLOCKES

1. Die Knöpfe an der Frontplatte entfernen.
2. Die in Abb. 3 gezeigten 3 Schrauben **C** entfernen.

ENTFERNEN DES TUNER-UND STROMVERSORGUNGSBLOCKES

1. Die in Abb. 4 gezeigten 2 Schrauben **D** entfernen.

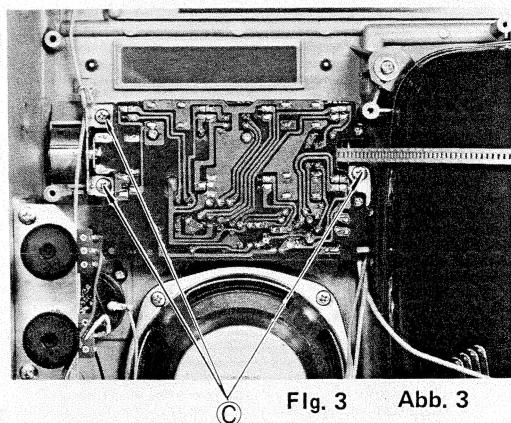


Fig. 3 Abb. 3

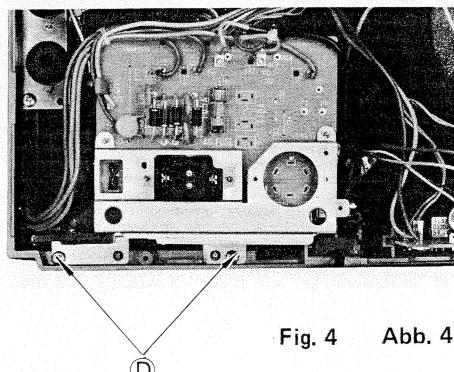


Fig. 4 Abb. 4

AUDIO CIRCUIT BOARD REMOVAL

1. Remove 7 screws **E** as shown in Fig. 5.

Note: When remove the Audio Circuit Board be carefully the connectors and wire.

LED CIRCUIT BOARD REMOVAL

1. Remove 2 screws **F** as shown in Fig. 6.

CASSETTE BLOCK REMOVAL

1. Remove 4 screws **G** as shown in Fig. 7

SPEAKER REMOVAL

1. Remove 12 screws **H** as shown in Fig. 8

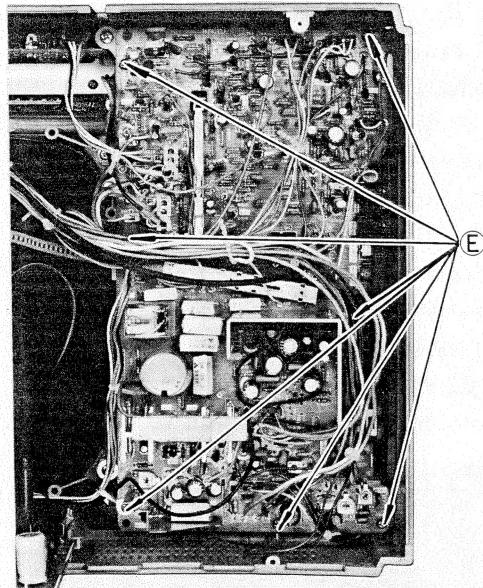


Fig. 5 Abb. 5

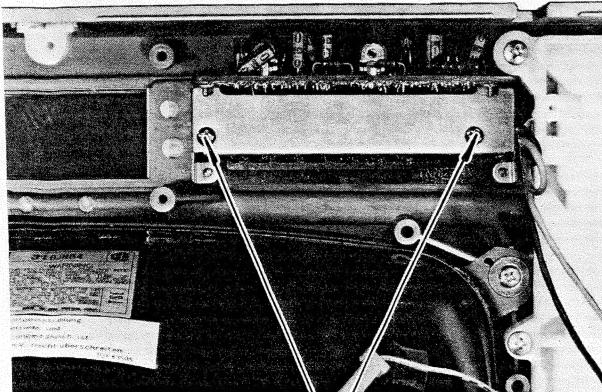


Fig. 6 Abb. 6

ENTFERNEN DES TON-LEITERPLATTENBLOCKES

1. Die in Abb. 5 gezeigten 7 Schrauben **E** entfernen.

Anmerkung: Beim Entfernen der Ton-Leiterplatte auf die Steckanschlüsse und Drähte achten.

ENTFERNEN DER LED-LEITERPLATTE

1. Die in Abb. 6 gezeigten 2 Schrauben **F** entfernen.

ENTFERNEN DES KASSETTENBANDGERÄTBLOCKES

1. Die in Abb. 7 gezeigten 4 Schrauben **G** entfernen.

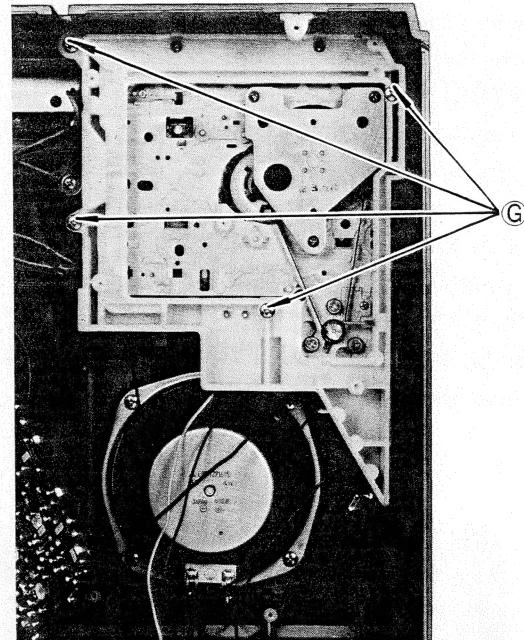


Fig. 7 Abb. 7

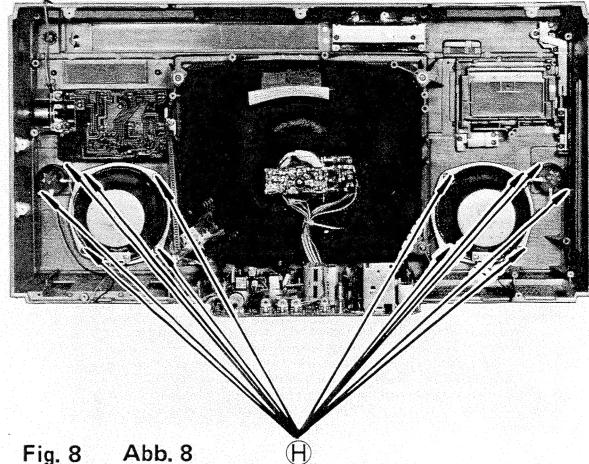
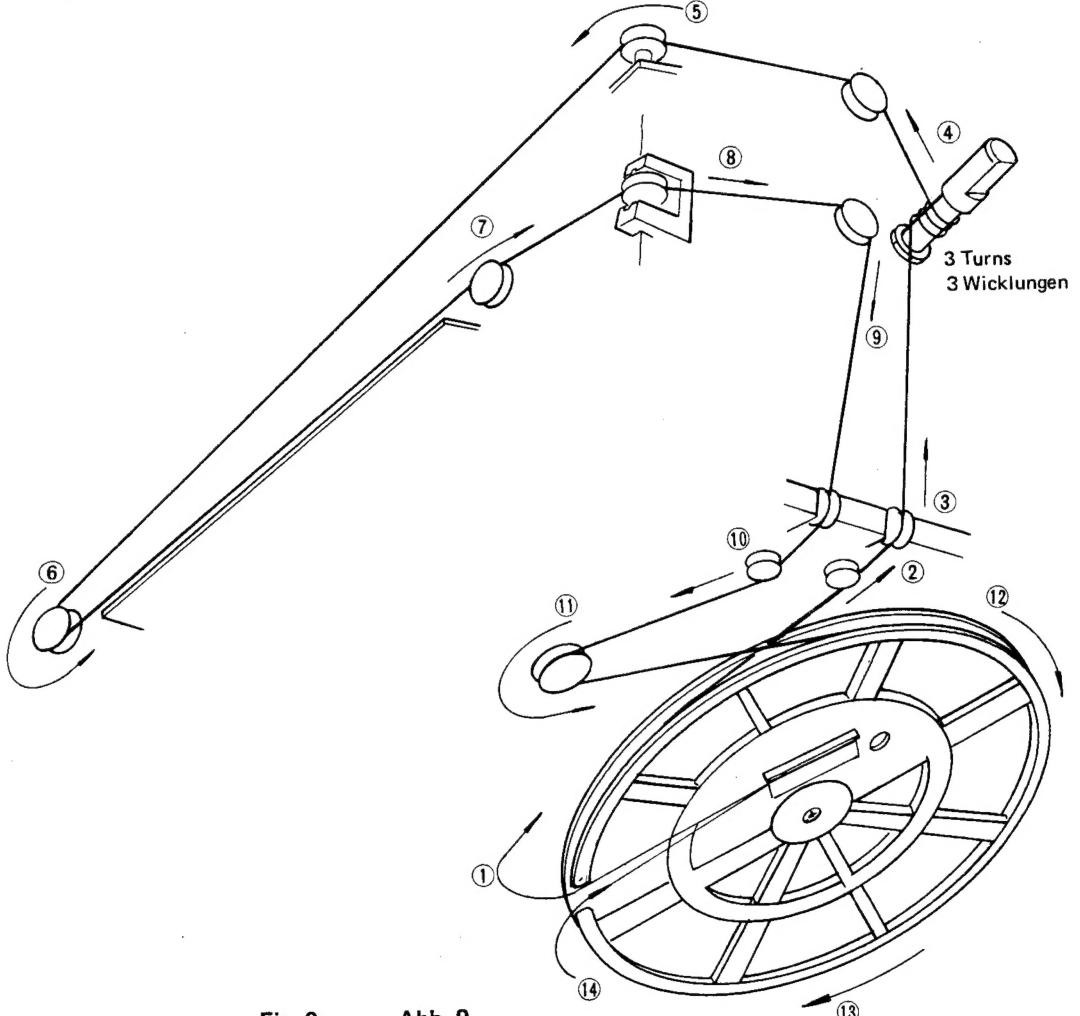


Fig. 8 Abb. 8

DIAL THREADING

Radio

1. Remove chassis from cabinet.
2. Turn dial drum to clockwise.
3. Arrows (① — ⑯) indicate correct order and indication of dial threading as shown in Fig. 9.



SPANNEN DER SKALENSCHNUR

Radioskala

1. Das Chassis vom Gehäuse entfernen.
2. Die Skalentrommel im Uhrzeigersinn drehen.
3. Die in Abb. 9 gezeigten Pfeile (① — ⑯) zeigen die richtige Reihenfolge beim Spannen der Skalenschnur an.

Fig. 9 Abb. 9

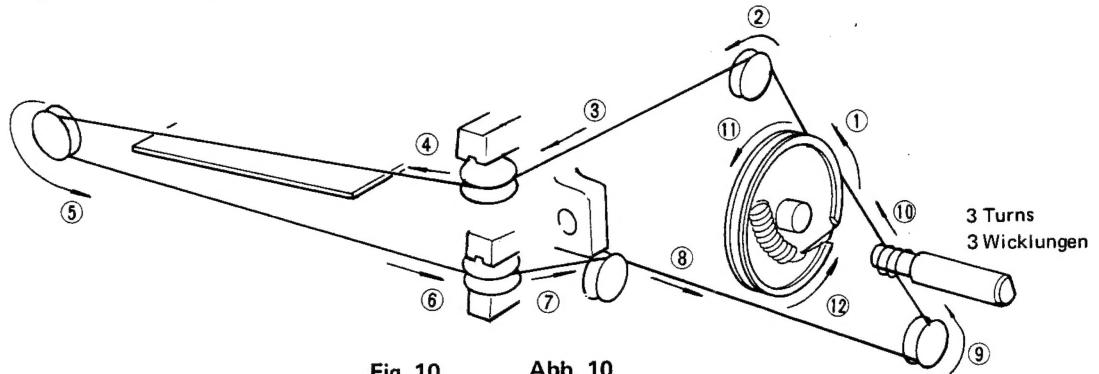
TV

1. Remove chassis from cabinet.
2. Turn dial drum to clockwise.
3. Arrows (① — ⑫) indicate correct order and indication of dial threading as shown in Fig. 10.

Fernsehskala

1. Das Chassis vom Gehäuse entfernen.
2. Die Skalentrommel im Uhrzeigersinn drehen.
3. Die in Abb. 10 gezeigten Pfeile (① — ⑫) zeigen die richtige Reihenfolge beim Spannen der Skalenschnur an.

Fig. 10 Abb. 10



—GENERAL ALIGNMENT

TV INDICATOR ALIGNMENT

Preparation

1. Set up voltmeter as shown in Fig. 11.
2. Maintain power supply voltage at 220 volt.

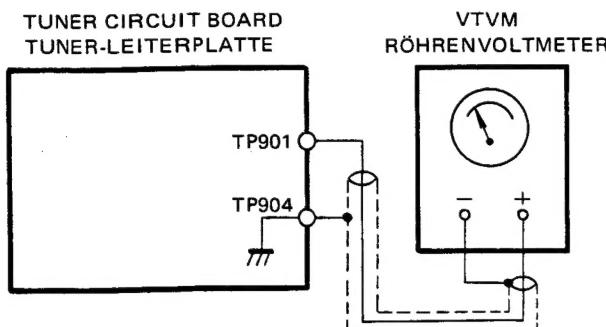


Fig. 11

Abb. 11

—ALLGEMEINER ABGLEICH—

FERNSEHANZEIGEABGLEICH

Vorbereitung

1. Das Voltmeter wie in Abb. 11 gezeigt aufstellen.
2. Die Netzspannung auf 220 V halten.

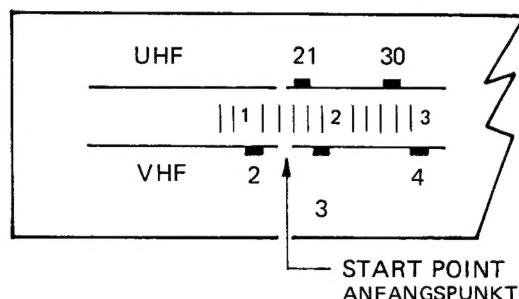


Fig. 12 Abb. 12

Alignment Procedure

1. Set selector switch to TV position and set TV Band switch to UHF position.
2. Turn the TV tuning and adjust indicator to start position as shown in Fig. 12.
3. Fully turn VR93 in the direction to increase the voltage TP901.
4. Adjust VR92 to 1.0 ± 0.1 V.
5. Set indicator to ch58 and adjust VR93 to 13.1 ± 0.1 V.
6. Set TV band switch to VHF position.
7. Set indicator to ch5 and fully turn VR95 in the direction to increase the voltage TP901.
8. Adjust VR94 to 4.5 ± 0.1 V.
9. Set indicator to ch10 and adjust VR95 to 10.1 ± 0.1 V.
10. Set indicator to ch4 and adjust VR96 to 9.5 ± 0.1 V.

NOTE: The following condition are required.

VHF: To obtain the picture at ch2, ch4, ch5, ch10, ± 0.5 ch from the correct indication points is acceptable.

UHF: To obtain the picture at ch21, ch25, ch50, ch58, ± 2 ch from the correct indication points is acceptable.

Abgleich

1. Den Wahlschalter auf Position Fernsehen und den Fernsehbandschalter auf Position UHF stellen.
2. Den Fernseh-Abstimm-und Einstellanziger auf Position Start stellen, wie in Abb. 12 gezeigt.
3. VR93 bis zum Anschlag drehen, um die Spannung von TP901 zu erhöhen.
4. VR92 auf 1.0 ± 0.1 V einstellen.
5. Den Anzeiger auf ch58 und VR93 auf 13.1 ± 0.1 V einstellen, um beste Bildqualität zu erhalten.
6. Den Fernsehbandschalter auf Position VHF stellen.
7. Den Anzeiger auf ch5 stellen und VR95 bis zum Anschlag drehen, um die Spannung von TP95 zu erhöhen.
8. VR94 auf 4.5 ± 0.1 V einstellen.
9. Den Anzeiger auf ch10 und VR95 auf 10.1 ± 0.1 V einstellen.
10. Den Anzeiger auf ch4 und VR96 auf 9.5 ± 0.1 V einstellen.

Anmerkung: Voraussetzungen zum Abgleich

VHF: Um bei ch2, ch4, ch5 und ch10 ein Bild zu erhalten, ist eine Abweichung von ± 0.5 ch von der korrekten Einstellung zulässig.

UHF: Um bei ch21, ch25, ch50 und ch58 ein Bild zu erhalten, ist eine Abweichung von ± 2 ch der korrekten Einstellung zulässig.

—VIDEO I-F ALIGNMENT—

EQUIPMENT CONNECTION

Disconnect the jumper lead (J401, J402).

Power Supply

Supply DC +11.5V to TP91.

Supply DC +15V to TP901.

Oscilloscope, Sweep Generator and Marker Generator.

Connect as shown in Fig. 13.

VIF SWEEP AND MARKER GENERATOR

BILD-ZF- UND FREQUENZMARKENGEGNER

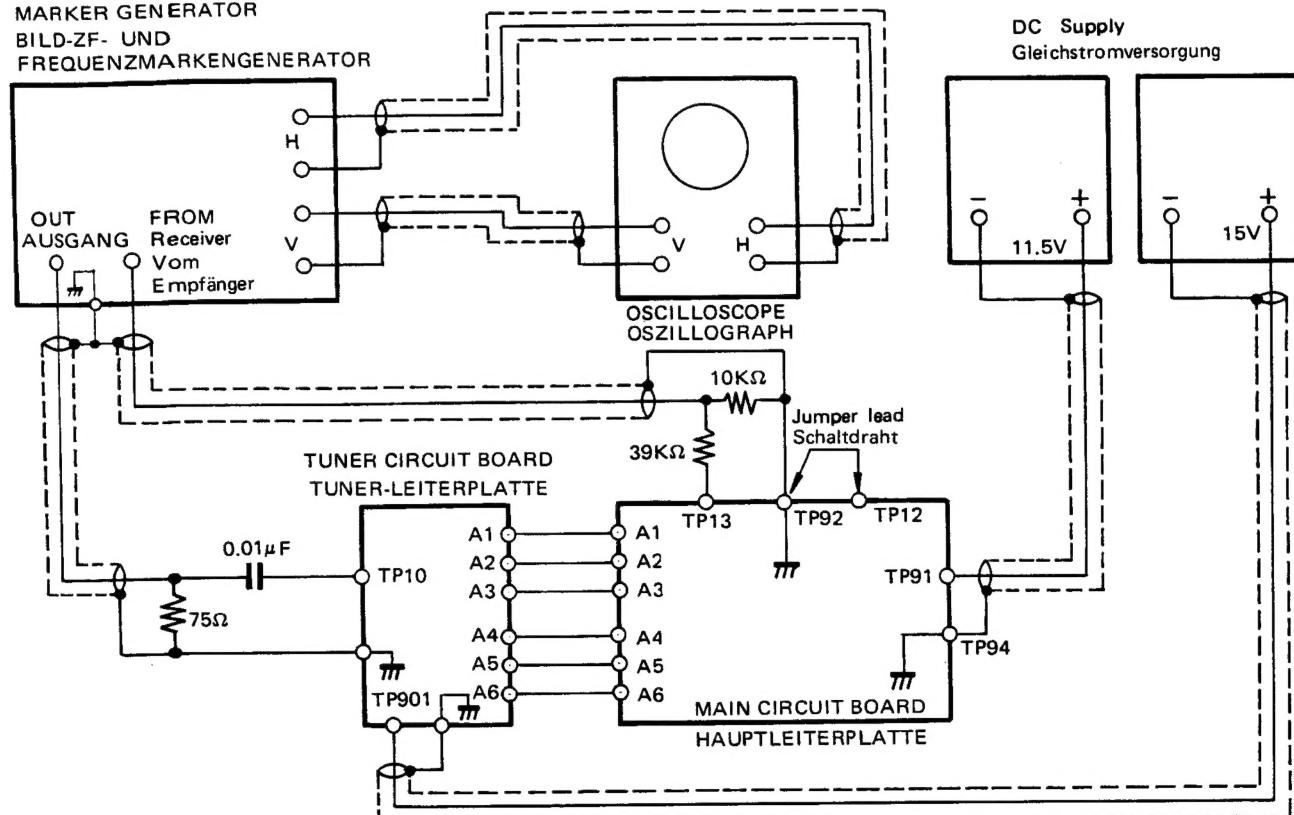


Fig. 13

BILD-ZF-ABGLEICH

GERÄTEANSCHLUSS

Den Schaltdraht trennen (J401, J402).

Stromversorgung

TP91 +11.5 V Gleichstrom zuleiten.

TP901 +15 V Gleichstrom zuleiten.

Oszillograph, Kippgenerator und Frequenzmarkengenerator

Gemäß Abb. 13 anschließen.

DC Supply Gleichstromversorgung

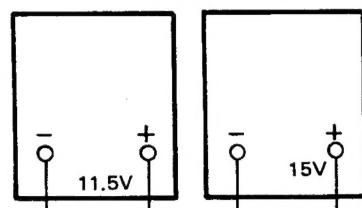


Abb. 13

STEP	ALIGNMENT	WAVEFORM	Schritt	ABGLEICH
1	Adjust L103 to the minimum gain at 40,40MHz marker position as shown in Fig. 14.		1	L103 gemäß Abb. 14 auf minimale Verstärkung bei der 40,40 MHz-Markenposition einstellen.
2	Adjust L109 to the maximum gain at 38,90MHz marker position as shown in Fig. 14.		2	L109 gemäß Abb. 14 auf minimale Verstärkung bei der 38,90 MHz-Markenposition einstellen.
3	Adjust L106 and L108 to the maximum gain at 36,65MHz marker position as shown in Fig. 14.		3	L106 und L108 gemäß Abb. 14 auf maximale Verstärkung bei der 36,65 MHz-Markenposition einstellen.

Fig. 14

Abb. 14

SOUND I-F ALIGNMENT

EQUIPMENT CONNECTION

Disconnect the jumper lead (J401, J402)

Power Supply

Supply DC +11.5V to TP91.

Oscilloscope, Sweep Generator and Marker Generator.

Connect as shown in Fig. 15.

TON-ZF-ABGLEICH

GERÄTEANSCHLUSS

Den Schaltdraht trennen (J401, J402).

Stromversorgung

TP91 +11.5 V Gleichstrom zuleiten.

Oszilloskop, Kippgenerator und Frequenzmarkengenerator.

Gemäß Abb. 15 anschließen.

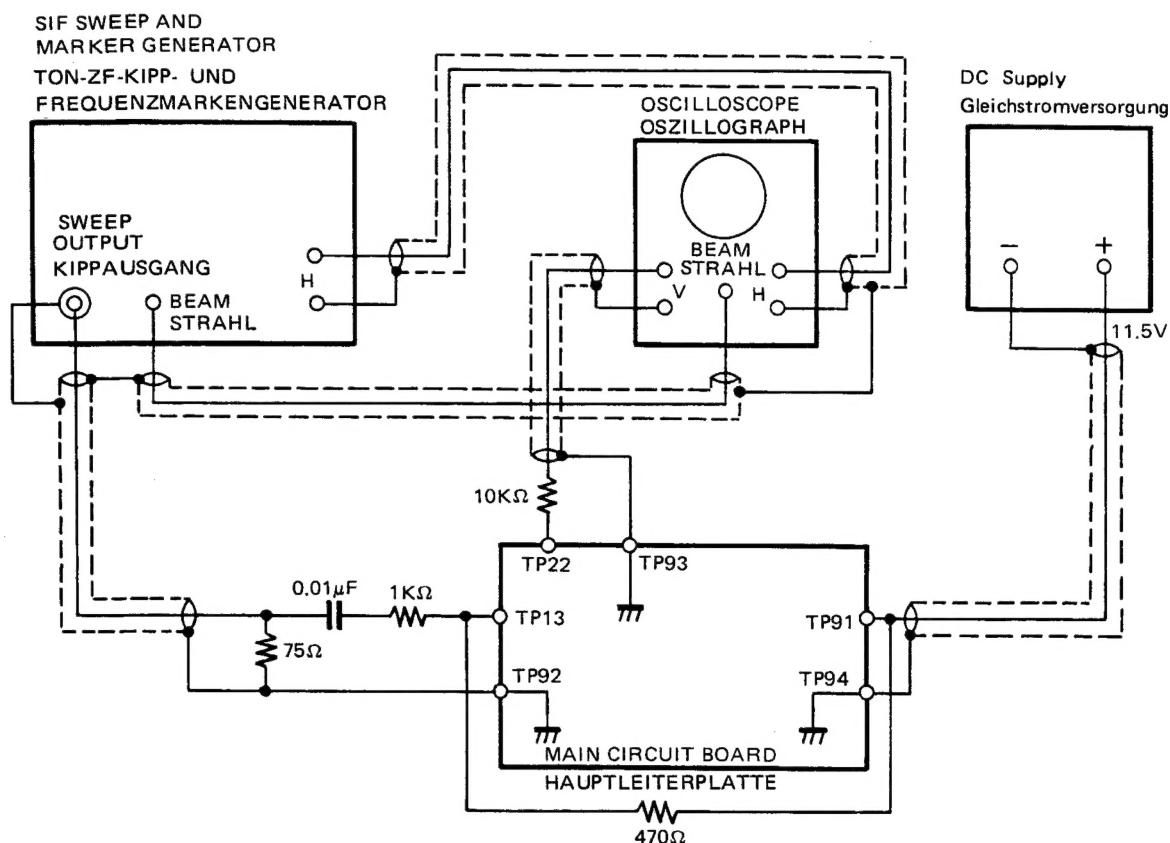


Fig. 15

Abb. 15

STEP	ALIGNMENT	WAVEFORM AM Signal	WELLENFORM Abb. 16	Schritt	ABGLEICH
1	Adjust both L201 and L202 to the maximum gain at 5.5MHz AM signal as shown in Fig. 16.	AM Signal	5.5MHz 5.5MHz +150kHz 5.5MHz -150kHz Abb. 16	1	L201 und L202 gemäß Abb. 16 auf maximale Verstärkung beim 5.5 MHz-AM-Signal drehen.
2	Adjust L202 to reduce the difference of AM signal as shown in Fig. 17.	Reduce the difference to minimum Unterschied auf Minimale verringern.	5.5MHz +150kHz A B 5.5MHz -150kHz Abb. 17	2	L202 gemäß Abb. 17 auf Verringerung des AM-Signalunterschieds einstellen.
3	Adjust L202 until the 5.5 MHz marker is at the center of slanted line as shown in Fig. 17.	AM signal	5.5MHz A B 5.5MHz -150kHz Abb. 17	3	L202 gemäß Abb. 17 verstetigen, bis sich die 5.5 MHz-Marke in der Mitte der schrägen Linie befindet.

MW I-F & R-F ALIGNMENT (Equipment required: Signal Generator; 8Ω speaker or dummy load.)

Output of signal generator should be no higher than necessary to obtain an output reading. Set Volume control to maximum. Set Balance, Treble and Bass controls to center. Set Band selector to MW. Set TV/Radio/Tape/Line in selector to "Radio" position. Maintain power supply voltage at 220 volts. Note: Control location is shown in fig. 22.						
SIGNAL GENERATOR COUPLING	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECTION	ADJUSTMENT	REMARKS
Fashion loop of several turns of wire and radiate signal into loop of receiver.	1	460 kHz (30% Mod. with 400 Hz)	Point of non-interference (on/about 600 kHz).	Output meter across EXT SP jack (L).	T1101 T1102 T1103	Adjust for maximum output. Repeat steps (2) and (3).
	2	600 kHz (30% Mod. with 400 Hz)	600 kHz		L1105 (OSC coil) L1102 (ANTENNA coil)	
	3	1400 kHz (30% Mod. with 400 Hz)	1400 kHz		L1111 (OSC trimmer) L1103 (ANTENNA trimmer)	

Note: 1. Cement aerial coil with wax after completing alignment.
 2. Make certain that speaker or dummy resistor (8Ω) is connected to the EXT SP jack when aligning.

MW ZF- & HF-ABGLEICH (Benötigte Geräte : Prüfgenerator; 4Ω Lautsprecher oder Blindwiderstand.)

Die Ausgangsleistung vom Prüfgenerator sollte nicht höher sein, als zur Erzielung einer Ausgangsanzeige nötig ist. Den Lautstärkeregler in ganz aufdrehen. Die Regler für Balance, Höhen und Bässe mittig einstellen. Den Bandwahlschalter in die "MW"-Position stellen. Den TV/Radio/Tonband/Direkteingang-Wahlschalter in die "Radio" -position stellen. Die Netzspannung auf 220 V konstant halten. Anmerkung: Die Anordnung der Regler wird in Abb. 22 gezeigt.						
PRÜF-GENERATOR-ANKOPPELUNG	SCHRITT	PRÜF-GENERATOR-FREQUENZ	RADIO-SKALEN-EINSTELLUNG	ANSCHLUSS	ABSTIMMUNG	BEMERKUNGEN
Kippgenerator strahlt Ausgangssignal an Schleifenantenne aus.	1	460 kHz (30% Mod. mit 400 Hz)	Störungsfreie Einstellung (auf/um 600 kHz)	Ausgangsmesser parallel an EXT SP Buchse. (Links)	T1101 T1102 T1103	Auf maximalen Ausgang abstimmen. Schritte (2) und (3) wiederholen.
	2	600 kHz (30% Mod. mit 400 Hz)	600 kHz		T1105 (Schwing-spule) L1102 (Antennen-spule)	
	3	1400 kHz (30% Mod. mit 400 Hz)	1400 kHz		L1111 (Schwing-trimmer) L1103 (Antennen-trimmer)	

Anmerkungen: 1. Die Antennenspule nach Beenden des Abgleichs mit Wachs verkleben.
 2. Sicherstellen, daß der Lautsprecher oder Blindwiderstand (8Ω) beim Abgleich an die EXT-SP-Buchse angeschlossen ist.

SW R-F ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
 Set Volume control to maximum.
 Set Balance, Treble and Bass controls to center.
 Set Band selector to SW.
 Set TV/Radio/Tape /Line in selector to "Radio" position.
 Maintain power supply voltage at 220 volts.
 Note: Control location is shown in fig. 22.

SIGNAL GENERATOR COUPLING	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECTION	ADJUSTMENT	REMARKS
Fashion loop of several turns of wire and radiate signal into loop of receiver.	1	6.0 MHz (30% Mod. with 400 Hz)	6.0 MHz	Output meter across EXT SP jack (L).	L1106 (OSC coil) L1103 (ANTENNA coil)	Adjust for maximum output.
	2	18.0 MHz (30% Mod. with 400 Hz)	18.0 MHz		C1 (OSC trimmer) C2 (ANTENNA trimmer)	

Note: Make certain that speaker or dummy resistor (8Ω) is connected to the EXT SP jack when aligning.

KW-HF-ABGLEICH

Die Ausgangsleistung vom Prüfgenerator sollte nicht höher sein, als zur Erzielung einer Ausgangsanzeige nötig ist.
 Den Lautstärkeregler ganz aufdrehen.
 Die Regler für Balance, Höhen und Bässe mittig einstellen.
 Den Bandwahlschalter in die "SW"-Position stellen.
 Den TV/Radio/Tonband/Direkteingang-Wahlschalter in die "Radio" -Position stellen.
 Die Netzspannung auf 220 V konstant halten. **Anmerkung:** Die Anordnung der Regler wird in Abb. 22 gezeigt.

PRÜF-GENERATOR-ANKOPPELUNG	SCHRITT	PRÜF-GENERATOR-FREQUENZ	RADIO-SKALEN-EINSTELLUNG	ANSCHLUSS	ABSTIMMUNG	BEMERKUNGEN
Kippgenerator strahlt Ausgangssignal an Schleifenantenne aus	1	6.0 MHz (30% Mod. mit 400 Hz)	6.0MHz	Ausgangsmesser parallel an EXT SP Buchse. (Links)	L1106 (Schwing-spule) L1103 (Antennen-spule)	Auf maximalen Ausgang abstimmen.
	2	18.0 MHz (30% Mod. mit 400 Hz)	18.0MHz		C1 (Schwing-trimmer) C2 (Antenne-trimmer)	

Anmerkungen: Sicherstellen, daß der Lautsprecher oder Blindwiderstand (8Ω) beim Abgleich an die EXT-SP-Buchse angeschlossen ist.

LW R-F ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
 Set Volume control to maximum.
 Set Balance, Treble and Bass controls to center.
 Set Band selector to LW.
 Set TV/Radio/Tape/Line in selector to "Radio" position.
 Maintain power supply voltage at 220 volts.
 Note: Control location is shown in fig. 22.

SIGNAL GENERATOR COUPLING	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECTION	ADJUSTMENT	REMARKS
Fashion loop of several turns of wire and radiate signal into loop of receiver.	1	145 kHz (30% Mod. with 400 Hz)	145 kHz	Output meter across EXT SP jack (L).	L1104 (OSC coil) L1102 (ANTENNA coil)	Adjust for maximum output by sliding coil (L1006) along ferrite core.
	2	285 kHz (30% Mod. with 400 Hz)	285 kHz		C1110 (OSC trimmer) C1102 (ANTENNA trimmer)	Adjust for maximum output Repeat step (1).

Note: 1. Cement aerial coil with wax after completing alignment.
 2. Make certain that speaker or dummy resistor (8Ω) is connected to the EXT SP jack when aligning.

KW-HF-ABGLEICH

Die Ausgangsleistung vom Prüfgenerator sollte nicht höher sein, als zur Erzielung einer Ausgangsanzeige nötig ist.
 Den Lautstärkeregler ganz aufdrehen.
 Die Regler für Balance, Höhen und Bässe mittig einstellen.
 Den Bandwahlschalter in die "LW"-Position stellen.
 Den TV/Radio/Tonband/Direkteingang-Wahlschalter in die "Radio" -Position stellen.
 Die Netzspannung auf 220 V konstant halten. **Anmerkung:** Die Anordnung der Regler wird in Abb. 34 gezeigt.

PRÜF-GENERATOR-ANKOPPELUNG	Schritt	PRÜF-GENERATOR-FREQUENZ	RADIO-SKALEN-EINSTELLUNG	ANSCHLUSS	ABSTIMMUNG	BEMERKUNGEN
Kippgenerator strahlt Ausgangssignal an Schleifenantenne aus	1	145kHz (30% Mod. mit 400 Hz)	145kHz	Ausgangsmesser parallel an EXT SP Buchse. (Links)	L1104 (Schwing-spule) L1102 (Antennen-spule)	Durch Verschieben der Spule (L1006) entlang des Ferritkerns auf maximalen Ausgang abstimmen.
	2	285kHz (30% Mod. mit 400 Hz)	285kHz		C1110 (Schwing-trimmer) C1102 (Antenne-trimmer)	Auf maximalen Ausgang abstimmen Schritte(1) wiederholen.

Anmerkungen: 1. Die Antennenspule nach Beenden des Abgleichs mit Wachs verkleben.
 2. Sicherstellen, daß der Lautsprecher oder Blindwiderstand (8Ω) beim Abgleich an die EXT-SP-Buchse angeschlossen ist.

FM I-F ALIGNMENT

EQUIPMENT REQUIRED

Signal generator that provides 10.7 MHz marker.
Sweep generator that provides 10.7 MHz and 400 kHz sweep width.

OSCILLOSCOPE

Set sweep selector of oscilloscope to EXTERNAL SWEEP.

Apply 50 Hz sweep signal from sweep generator to horizontal input terminals of oscilloscope.

Set Volume control to maximum.

Set Balance, Treble and Bass controls to center.

Set TV/Radio/Tape/Line in selector to "Radio" position. Maintain power supply voltage at 220 volts.

Set Band selector to FM.

Note: Control location is shown in fig. 22.

SIGNAL GENERATOR COUPLING	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECTION	ADJUSTMENT	REMARKS
Connect to TP102 through FM DUMMY (See Fig. 20) Common to chassis.	1	10.7 MHz (30% Mod. with 400Hz)	Point of non-interference. (On/about 90 MHz)	Connect vert. amp. of scope to TP104 Common to chassis.	T1001 T1002	Adjust for maximum amplitude and proper linearity. (See fig. 18)
	2				T1003	To obtain proper linearity. (See fig. 19)

Note: Make certain that speaker or dummy resistor (8Ω) is connected to the EXT SP jack when aligning.

UKW-ZF-ABGLEICH

BENÖTIGTE GERÄTE

Prüfgenerator, der 10.7MHz-Markierer aufweist.

Kippgenerator, der 10.7MHz und 400kHz Kippbreite aufweist.

OSZILLOGRAPH

Den Kipp-Wahlschalter am Oszillograph auf EXTERNAL SWEEP einstellen.

50Hz-Kippsignal vom Kippgenerator den horizontalen Eingangsanschlüsse des Oszillograph zuleiten.

Den Lautstärkeregler ganz zurückdrehen.

Die Regler für Balance, Höhen und Bässe mittig einstellen.

Den TV/Radio/Tonband/Direkteingang-Wahlschalter in die "Radio" -Position stellen.

Den Bandwahlschalter auf FM stellen.

Die Netzspannung auf 220 V konstant halten. **Ammerkung:** Die Anordnung der Regler wird in Abb. 22 gezeigt.

KIPP-GENERATOR-ANKOPPELUNG	Schritt	PRÜF-GENERATOR-FREQUENZ	RADIO-SKALEN-EINSTELLUNG	ANSCHLUSS	ABSTIMMUNG	BEMER-KUNGEN
Über UKW-Ersatzantenne an TP102 anschließen (siehe Abb.20). Anschluß an Chassiserdung.	1	10.7 MHz (30% Mod. mit 400 Hz)	Störungsfreie Einstellung. (um/aug 90 MHz)	Vert. Verst. des Oszillgraph an TP104. —Anschluß an Chassiserdung.	T1001 T1002	Auf maximale Amplitude und saubere Liniariät abstimmen. (Siehe Abb. 18.)
	2				T1003	Zur Erzielung sauberer Linearität (Siehe. Abb. 19.)

Anmerkungen: Sicherstellen, daß der Lautsprecher oder Blindwiderstand (8Ω) beim Abgleich an die EXT-SP-Buchse angeschlossen ist.

FM R-F ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.

Set Volume control to maximum.

Set Balance, Treble and Bass controls to center.

Set TV/Radio/Tape/Line in selector to "Radio" position.

Set Band selector to FM.

Maintain power supply voltage at 220 volts.

Note: Control location is shown in fig. 22.

SIGNAL GENERATOR COUPLING	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECTION	ADJUSTMENT	REMARKS
Connect to EXT FM antenna terminal through FM DUMMY ANTENNA (See fig. 21) Common to chassis.	1	90 MHz (30% Mod. with 400 Hz)	90 MHz	Output meter across EXT SP jack (L).	L1002 (FM OSC coil) L1001 (FM Collector coil)	Adjust for maximum output.
	2	106 MHz (30% Mod. with 400 Hz)	106 MHz		FC1 (FM OSC trimmer) FC2 (FM collector trimmer)	Adjust for maximum output. Repeat steps (1) and (2).

Note: Make certain that speaker or dummy resistor (8Ω) is connected to the EXT SP jack when aligning.

UKW-HF-ABGLEICH

Die Ausgangsleistung vom Prüfgenerator sollten nicht höher sein, als zur Erzielung einer Ausgangsanzeige nötig ist.

Den Lautstärkeregler gauz aufdrehen.

Die Netzspannung auf 220 V konstant halten.

Die Regler für Balance, Höhen und Bässe mittig einstellen.

Den TV/Radio/Tonband/Direkteingang-Wahlschalter in dir "Radio" -Position stellen.

Den Bandwahlschalter auf "FM" stellen.

Anmerkung: Die Anordnung der Regler wird in Abb. 22 gezeigt.

PRÜF-GENERATOR-ANKOPPELUNG	SCHRITT	PRÜF-GENERATOR-FREQUENZ	RADIO-SKALEN-EINSTELLUNG	ANSCHLUSS	ABSTIMMUNG	BEMERKUNGEN
EXT UKW-Antennenanschluß über UKW-Ersatzantenne anschließen (Siehe Abb. 21.) –Anschluß an Chassiserdung.	1	90 MHz (30% Mod. mit 400 Hz)	90MHz	Ausgangsmesser parallel an EXT-SP Buchse. (Links)	L1002 (FM UKW-Schwing spule) L1001 (UKW-Kollektorschwingspule)	Auf maximalen Ausgang abstimmen.
	2	106 MHz (30% Mod. mit 400 Hz)	106MHz		FC1 (UKW-Schwingtrimmer) FC2 (UKW-Kollektor trimmer)	Auf maximalen Ausgang abstimmen. Schritte (1) und (2) wiederholen.

Anmerkungen: Sicerstellen, daß der Lautsprecher oder Blindwiderstand (8Ω) beim Abgleich an die EXT-SP-Buchse angeschlossen ist.

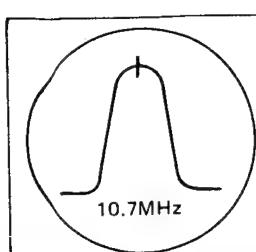


Fig. 18 Abb. 18

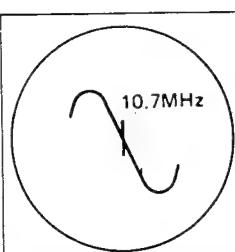


Fig. 19 Abb. 19

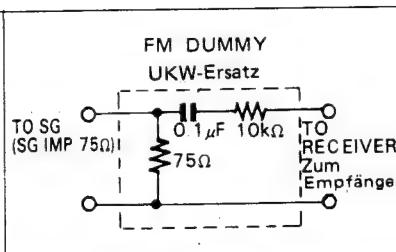


Fig. 20 Abb. 20

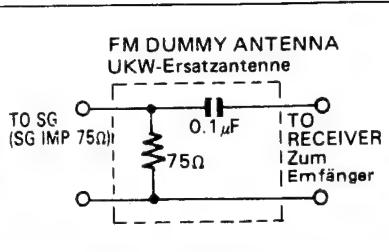


Fig. 21 Abb. 21

FM Stereo Alignment

Output of signal generator should be no higher than necessary to obtain an output reading.

Set Volume control to Maximum.

Set Balance, Treble and Bass controls to center position.

Set TV/Radio/Tape/Line in selector to "Radio" position. Maintain power supply voltage at 220 volts.

Set Band selector to FM. Note: Control location as shown in Fig. 22.

EQUIPMENT CONNECTION	ADJUSTMENT	REMARKS
Connect frequency counter to TP 103 and chassis ground	VR 101	Adjust for 19 ± 0.1 KHz on frequency counter reading

SEPARATION ALIGNMENT

Control position:

1. Stereo modulation: Connect stereo modulator to EXT. mod. terminal of signal
2. Signal Generator: Modulation rate of 19 KHz pilot signal 10%
Modulation rate of Left and Right signal 27%
Output level 80dB
3. Balance control: Adjust balance control so that output level from both channels becomes equal.

EQUIPMENT CONNECTION	ADJUSTMENT	REMARKS
SIGNAL GENERATOR		
Connect to EXT. FM antenna terminal through FM DUMMY ANTENNA (See Fig. 21) Common to chassis	VR102 (Separation control)	Set function switch of stereo modulator to "L" (left) position. Adjust VR 102 to obtain the Minimum "R" (right) output Set function switch of stereo modulator to "R" (Right) position. Adjust VR 102 to obtain the minimum "L" (Left) output.

Note: When alignment separation, disconnect frequency counter.

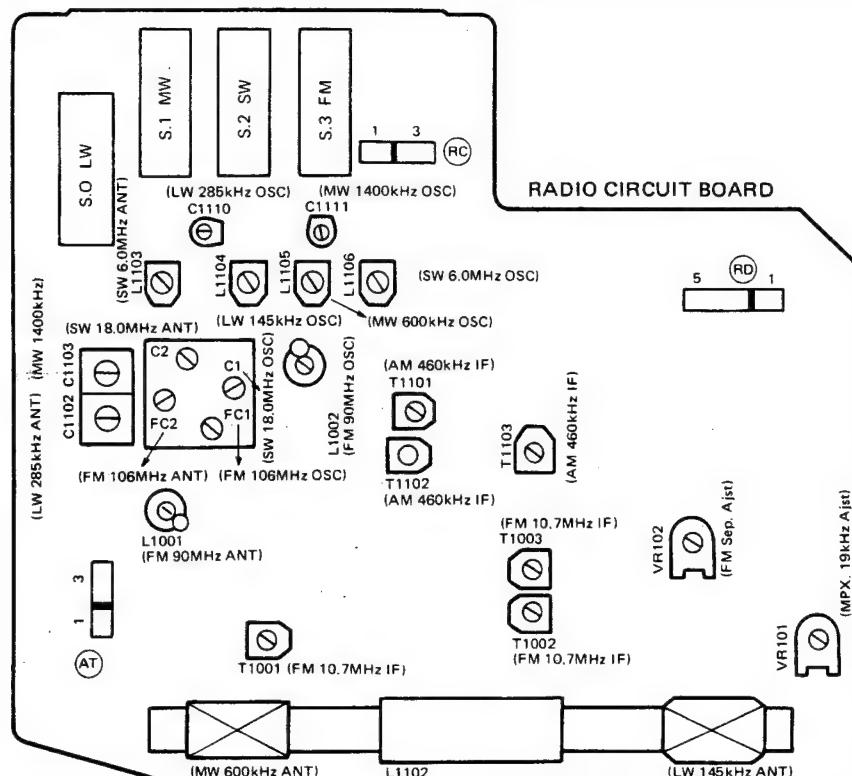


Fig. 22

Abb. 22

UKW-Stereo-Abgleich

Der Ausgang des Meßsenders sollte nicht höher sein, als für eine Ausgangsanzeige erforderlich ist.

Den Lautstärkeregler ganz aufdrehen.

Die Regler für Balance, Höhen und Bässe mittig einstellen.

Den TV/Radio/Tonband/Direkteingang-Wahlschalter in die "Radio"-Position stellen.

Den Wellenbereichswähler auf "FM" einstellen.

Die Netzspannung auf 220 V konstant halten.

Anmerkung: Die Lage der Regler ist aus Abb. 22 ersichtlich.

GERÄTEANSCHLUSS	EINSTELLUNG	BEMERKUNGEN
Frequenzzähler an TP103 und Chassismasse anschließen.	VR101	Auf eine Frequenzzähleranzeige von 19 ± 0.1 kHz einstellen.

TRENNUNGS-ABGLEICH

Reglerstellungen:

- | | | |
|----------------------|---|-------|
| 1. Stereo-Modulator: | Stereo-Modulator an die EXT.-Modulationssignallemme anschließen. | |
| 2. Meßsender: | Modulationsgrad des 19 kHz-Pilot-signals | 10% |
| | Modulationsgrad des Signals für den rechten und linken Kanal | 27% |
| | Ausgangspegel | 80 dB |
| 3. Balanceregler: | Den Balanceregler so einstellen, daß der Ausgangspegel beider Kanäle gleich wird. | |

MESSENDER	OSZILLOGRAPH	EIN-STELLUNG	BEMERKUNGEN
Über eine künstliche UKW-Antenne an die Antennenklemme EXT.FM anschließen. (Siehe Abb. 21.) An das Chassis erden.	Vertikal (Trennungsverstärkereingang des Oszillographenreglers) an die RC-Klemme Nr. 1 und Nr. 2 anschließen. An das Chassis erden.	VR102 (Trennungsregler)	Funktionsschalter des Stereo-Modulators auf die Stellung "L" (linker Kanal) einstellen. VR102 auf minimalen "R"-Ausgang (rechter Kanal) einstellen. Funktionsschalter des Stereo-Modulators auf die Stellung "R" (rechter Kanal) einstellen. VR102 auf minimalen "L"-Ausgang (linker Kanal) einstellen.

Anmerkung: Beim Trennungs-Abgleich den Frequenzzähler trennen.

CASSETTE TAPE RECORDER—KASSETTENBANDGERÄT-ABGLEICH ALIGNMENT

TRAP COIL ALIGNMENT

Preparation

1. Set up Oscilloscope and DC power supply as shown in Fig. 23.

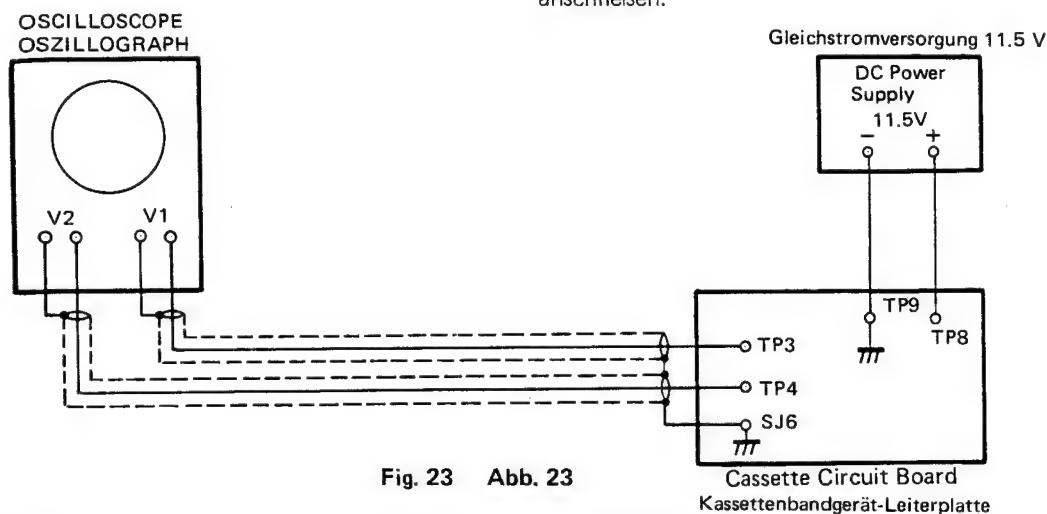


Fig. 23 Abb. 23

Cassette Circuit Board
Kassettenbandgerät-Leiterplatte

Alignment Procedure

1. Set VR141 and VR151 to center position.
2. Set tape recorder to recording mode.
3. Adjust L1401 and L1501 to obtain minimum level.

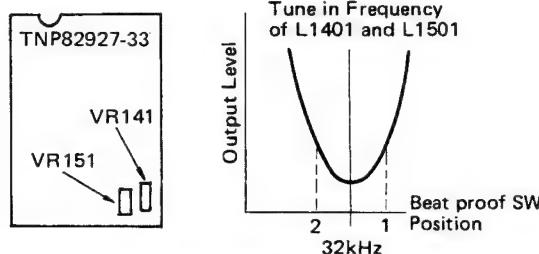


Fig. 24 Abb. 24

BIAS ALIGNMENT

Preparation

1. Set up Voltmeter and DC power supply as shown in Fig. 25.

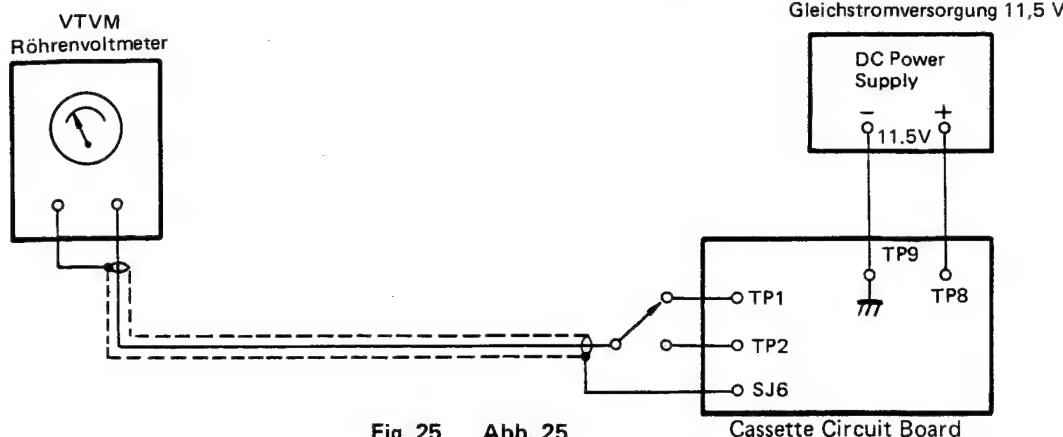


Fig. 25 Abb. 25

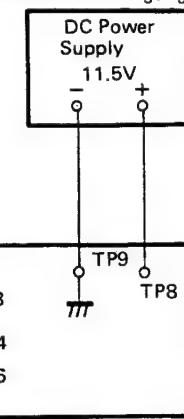
Cassette Circuit Board
Kassettenbandgerät-Leiterplatte

SPERRSPULEN-ABGLEICH

Vorbereitung

1. Oszillograph und Gleichstromversorgung gemäß Abb. 23 anschließen.

Gleichstromversorgung 11.5 V



Abgleichvorgang

1. VR141 und VR151 mittig einstellen.
2. Kassettenbandgerät auf Aufnahme einstellen.
3. L1401 und L1501 auf minimalen Pegel einstellen.

Alignment Procedure

1. Adjust VR141 and VR151 to obtain the voltage of $+2.7\text{mV} \pm 0.2\text{mV}$. Set beat proof SW 102 at position 2.
2. Readjust VR141 and VR151 to obtain the voltage of $+2.8\text{mV} \pm 0.3\text{mV}$ with SW102 at position 1.

Note: Trap coil alignment and Bias alignment interact with one another.

Repeat alignment several times to confirm correct trap coil and bias alignment.

Abgleichvorgang

1. VR141 und VR151 auf die Spannung von $+2.7\text{ mV} \pm 0.2\text{ mV}$ einstellen.
Den Störunterdrückungsschalter SW 102 auf die Stellung 2 einstellen.
2. VR141 und VR151 bei auf Stellung 1 eingestelltem SW102 auf die Spannung von $+2.8\text{ mV} \pm 0.3\text{ mV}$ einstellen.

Anmerkung: Der Abgleich der Sperrspule steht mit demjenigen der Vorspannung in Wechselwirkung.
Den Abgleichvorgang mehrmals wiederholen, um einen einwandfreien Sperrspulen- und Vorspannungsabgleich sicherzustellen.

Preparation

1. Set up Oscilloscope and DC supply as shown in Fig. 26.

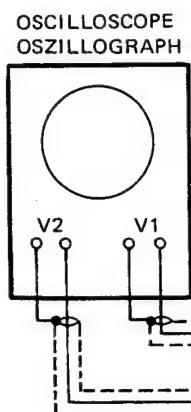


Fig. 26

Vorbereitung

1. Oszillograph und Gleichstromversorgung gemäß Abb. 26 anschließen.

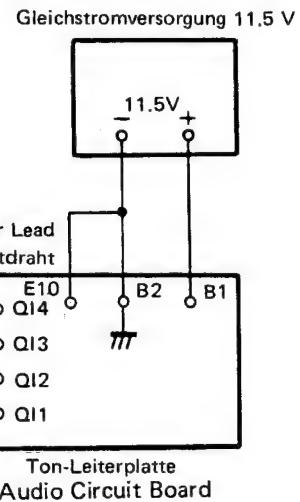


Abb. 26

Ton-Leiterplatte
Audio Circuit Board

Alignment Procedure

1. Play azimuth tape.
2. Adjust record/playback head angle adjustment-screw **A** as shown in Fig. 27 which output level and pause from both channels becomes equal.
3. Fix adjustment lock head adjustment screw with lacquer.

Abgleichvorgang

1. Ein Azimutband abspielen.
2. Die Aufnahme-/Wiedergabekopfwinkel-Einstellschraube A gemäß Abb. 27 so einstellen, daß Ausgangspegel und Phase beider Kanäle gleich werden.
3. Die erwähnte Einstellschraube mit Lack sichern.

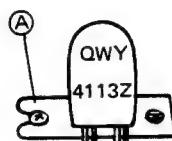


Fig. 27

Abb. 27

—LED METER ALIGNMENT— LEUCHTHDIODENANZEIGE-ABGLEICH

LED METER ALIGNMENT

Preparation

1. Set up Signal Generator as shown in Fig. 28.
Maintain power supply voltage at 220 volts.

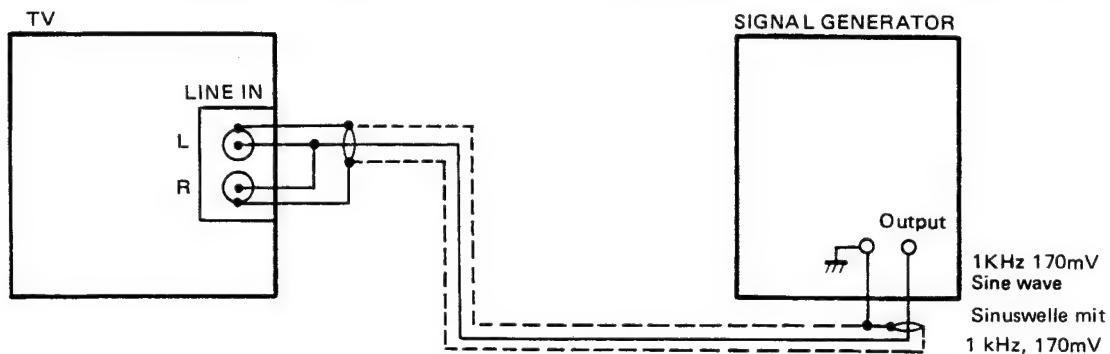


Fig. 28

Abb. 28

Alignment Procedure

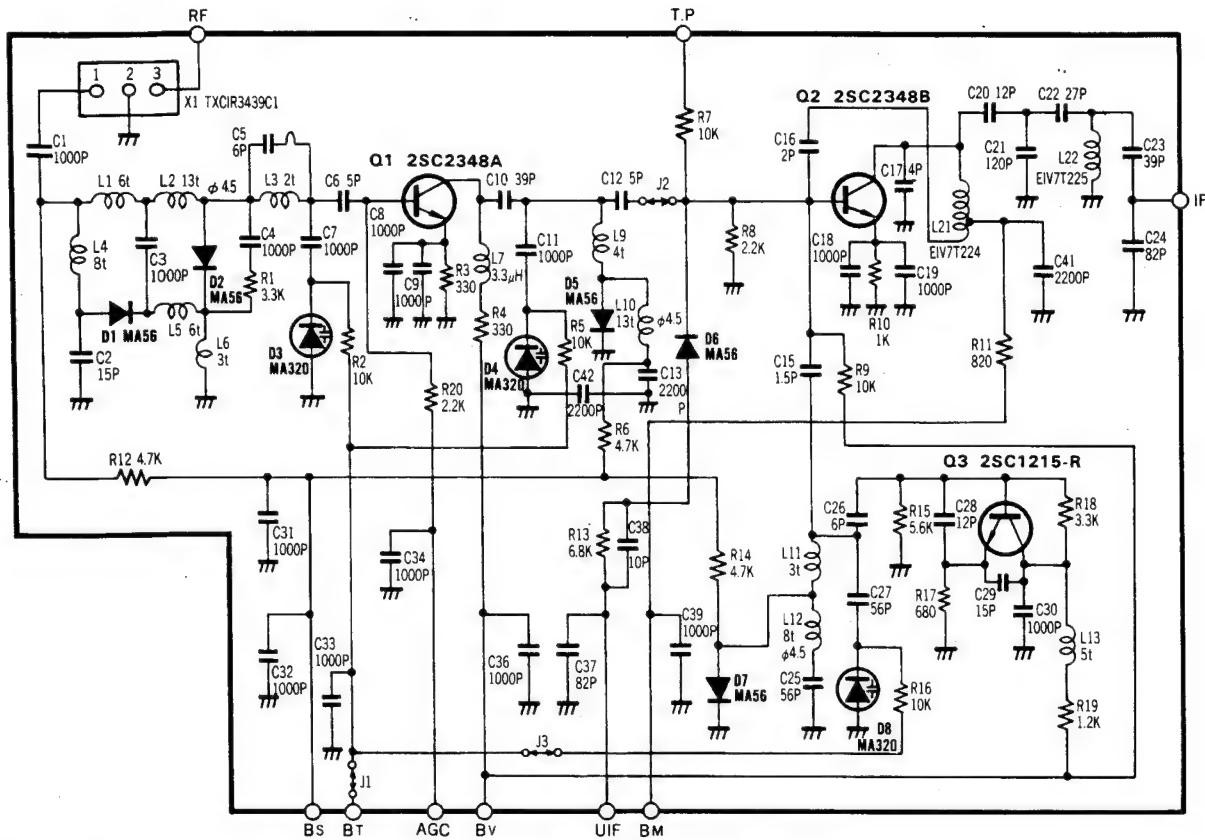
1. Set the LED Meter sw (SW301) ON position.
2. Set the TV/Radio/Tape/Line in selector "LINE-IN" position.
3. Adjust VR 301 to obtain light the 5th. LED meter from left side.
4. Adjust VR 302 to obtain light the 5th. LED meter from right side.

Abgleichvorgang

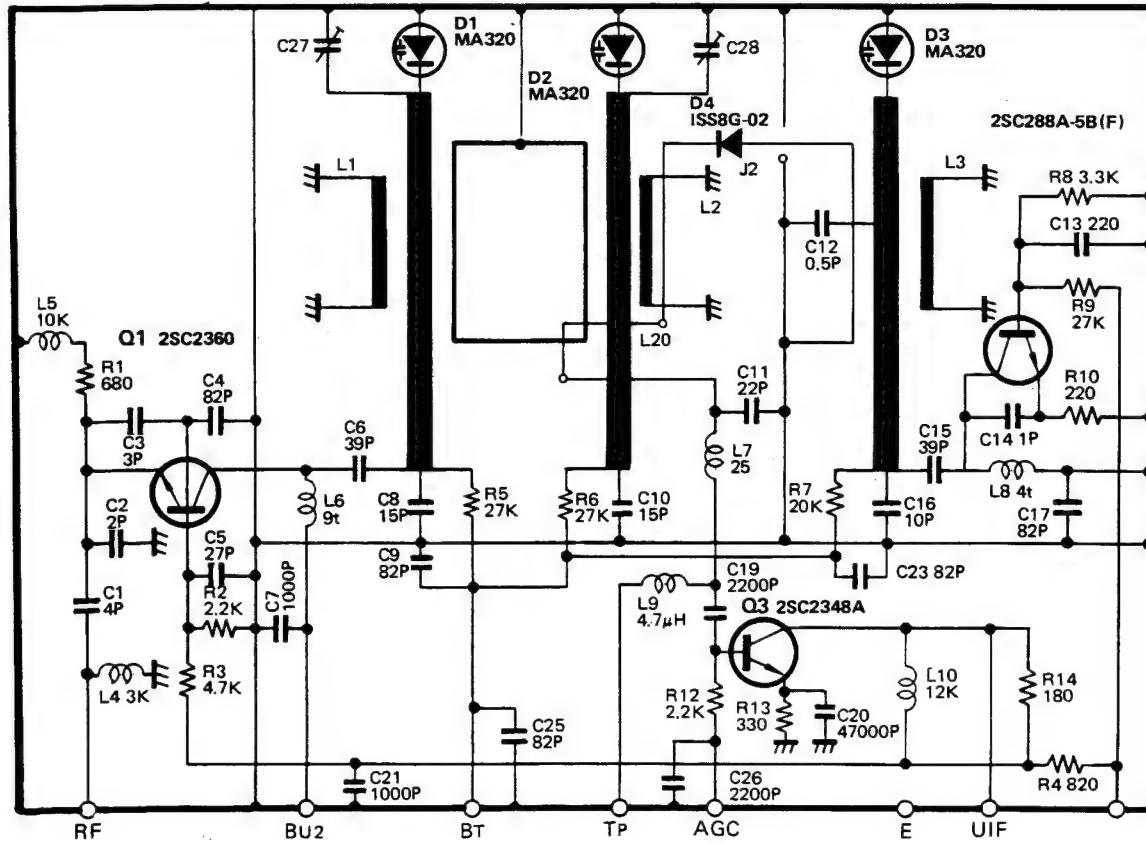
1. Den Leuchtdiodenanzeigeschalter (SW301) auf die Stellung "ON" einstellen.
2. Den TV/Radio/Tonband/Direkteingang-Wahlschalter auf die Stellung "LINE-IN" einstellen.
3. VR301 so einstellen, daß die 5. Leuchtdiode von links aufleuchtet.
4. VR302 so einstellen, daß die 5. Leuchtdiode von rechts aufleuchtet.

MEMO

VHF TUNER TNV17903F1F

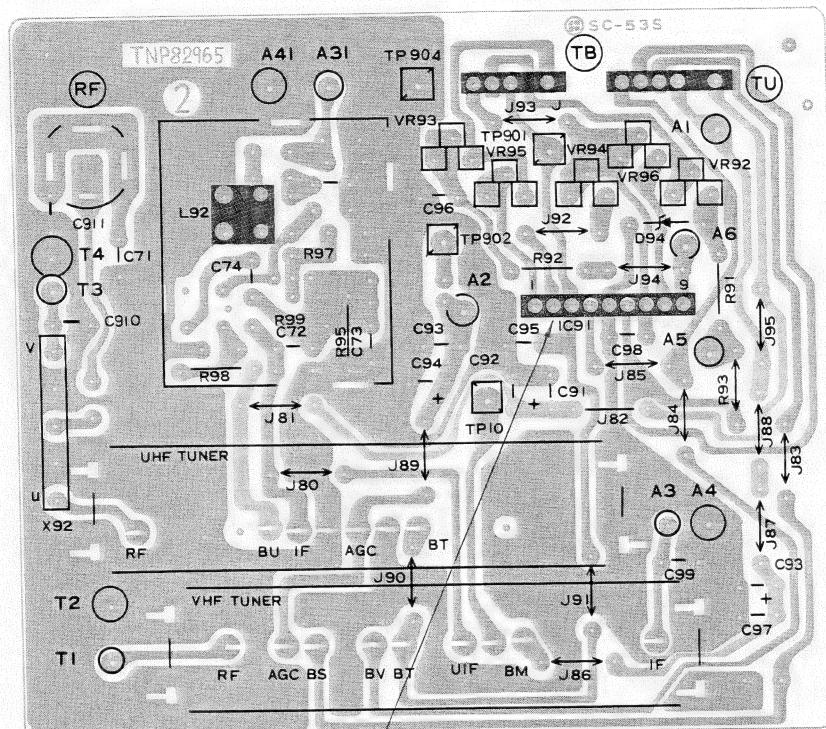


UHF TUNER TNV87902F1F



CONDUCTOR VIEW

TUNER CIRCUIT BOARD
TNP82965-31



IC91 Terminal Voltage

TV Band	Terminal No.	1	2	3	4	5	6	7	8	9
VL	31	13.5			5.4	0	-5.3	13.5	31	32
VH	31	0.3			5.4	0	4.5	0.8	0.8	32
U	20	6.4			0.2	0	-5.3	6.4	6.3	32

IC91 Terminal 3 →

Channel	2	3	4	5	6	7	8	9	10	11	12
VHF	1.8	5.3	9.3	3.6	4.5	5.6	6.8	8.2	9.9	11.9	15.9
Channel	21	25	30	35	40	45	50	55	60	65	69
UHF	0.8	2.1	3.6	5.5	6.4	8.5	9.9	11.4	13.1	15.2	17.4

CONDUCTOR VIEW

RADIO CIRCUIT BOARD

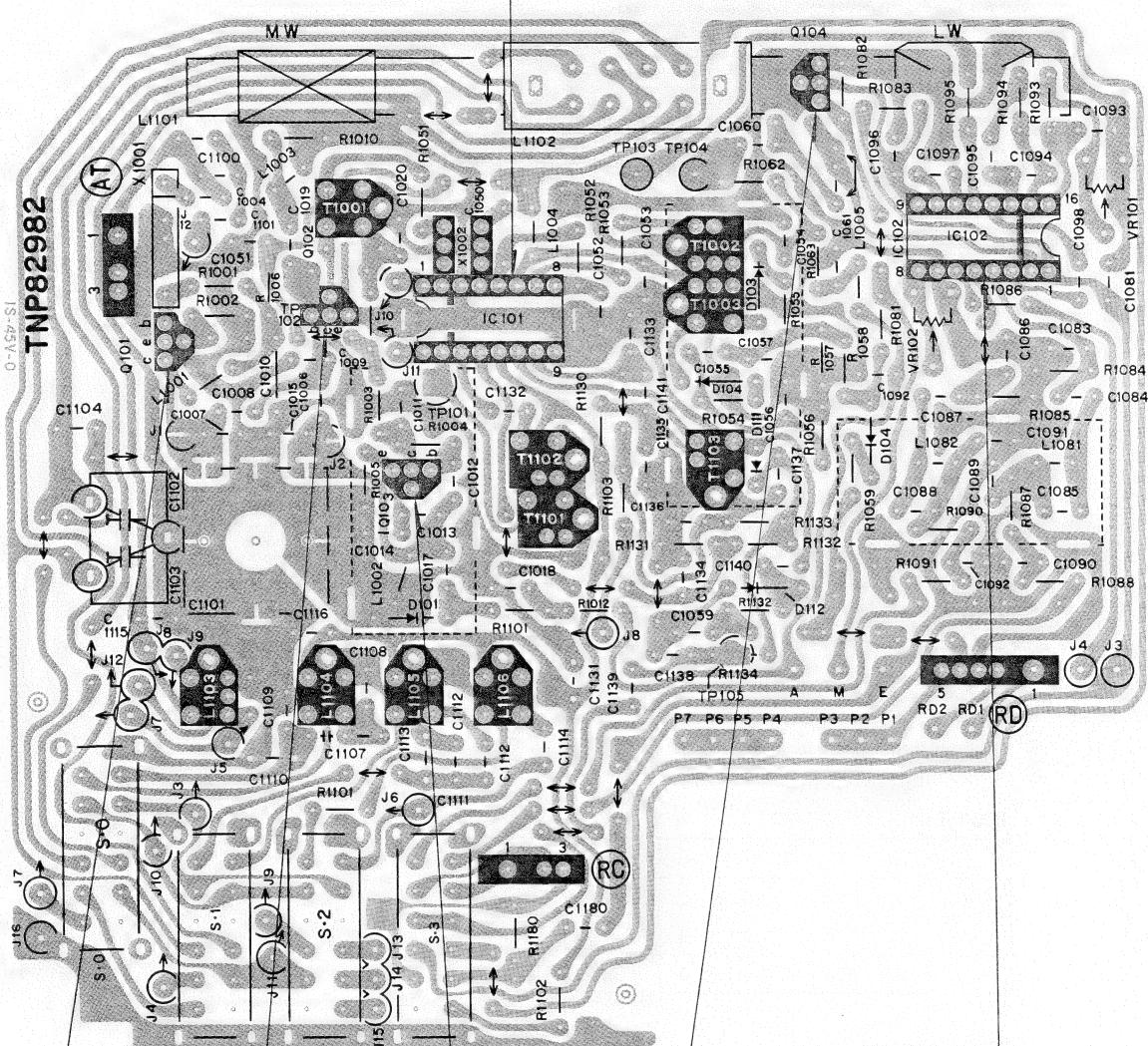
TNP82982-31H

IC101

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AM	4.8V	0V	0V	0V	0V	0V	0V	0V	0V	0.7V	4.8V	4.8V	0.7V	0.7V	4.8V	0.7V
FM	0V	0.7V	0V	2.8V	3.5V	4.6V	4.5V	3.4V	0V	0V	0V	0V	0V	0V	0V	0V

TNP82982

O-A5P-S1



Q101		
C	3.2V	
B	0.8V	
E	0.04V	

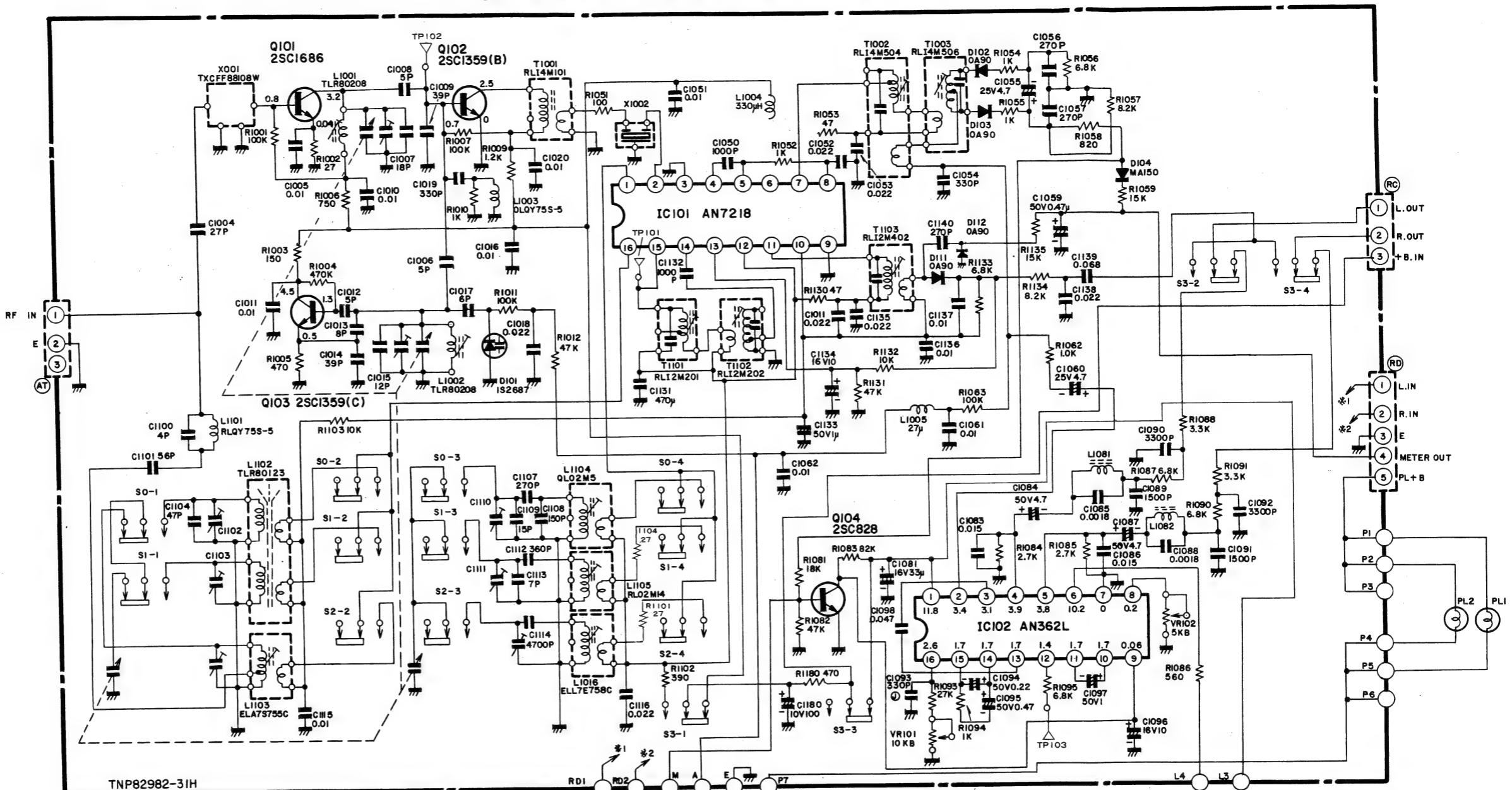
Q102		
C	2.5V	
B	0.7V	
E	0V	

Q103		
C	4.5V	
B	1.3V	
E	0.5V	

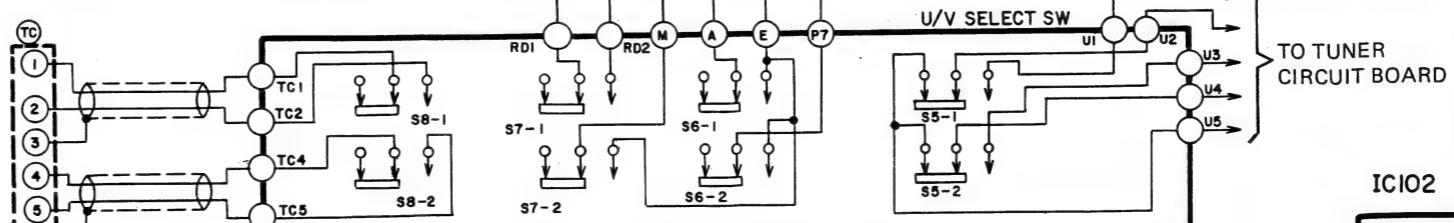
Q104		
	AM	FM
C	0.03V	0.06V
B	0V	0.6V
E	0V	0V

IC102			
1	11.8V	9	0.06V
2	3.4V	10	1.7V
3	3.1V	11	1.7V
4	3.9V	12	1.4V
5	3.8V	13	1.7V
6	10.2V	14	1.7V
7	0V	15	1.7V
8	0.2V	16	2.6V

—SCHEMATIC DIAGRAM FOR RADIO



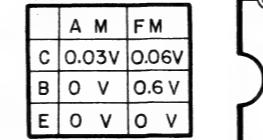
SI ~ S5 BAND SELECT SWITCH



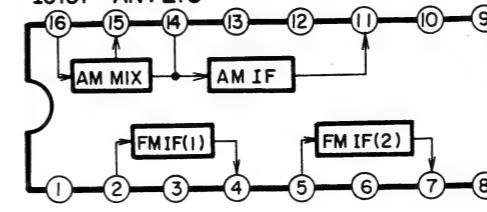
IC102 AN362L

101

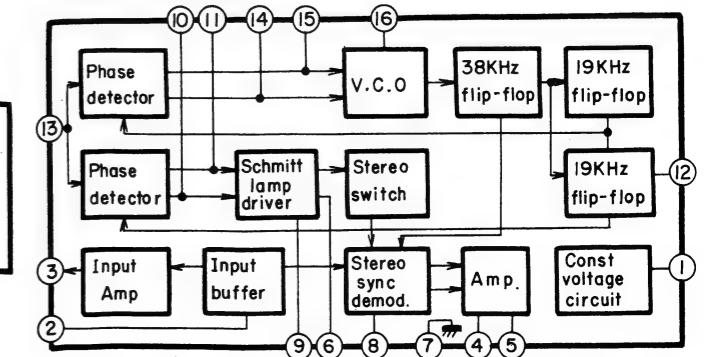
Q104



IC101 AN72

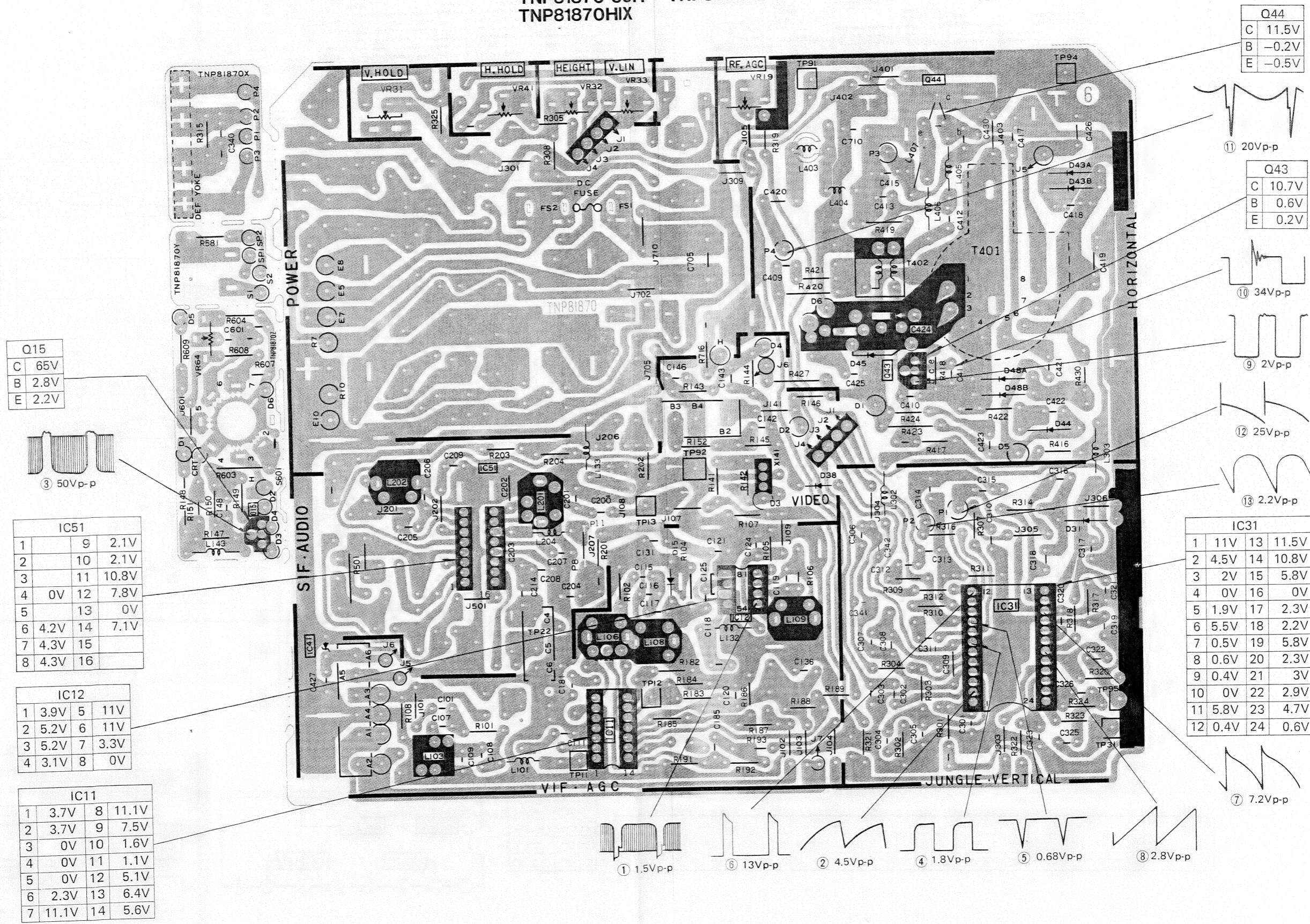


IC102 AN362L

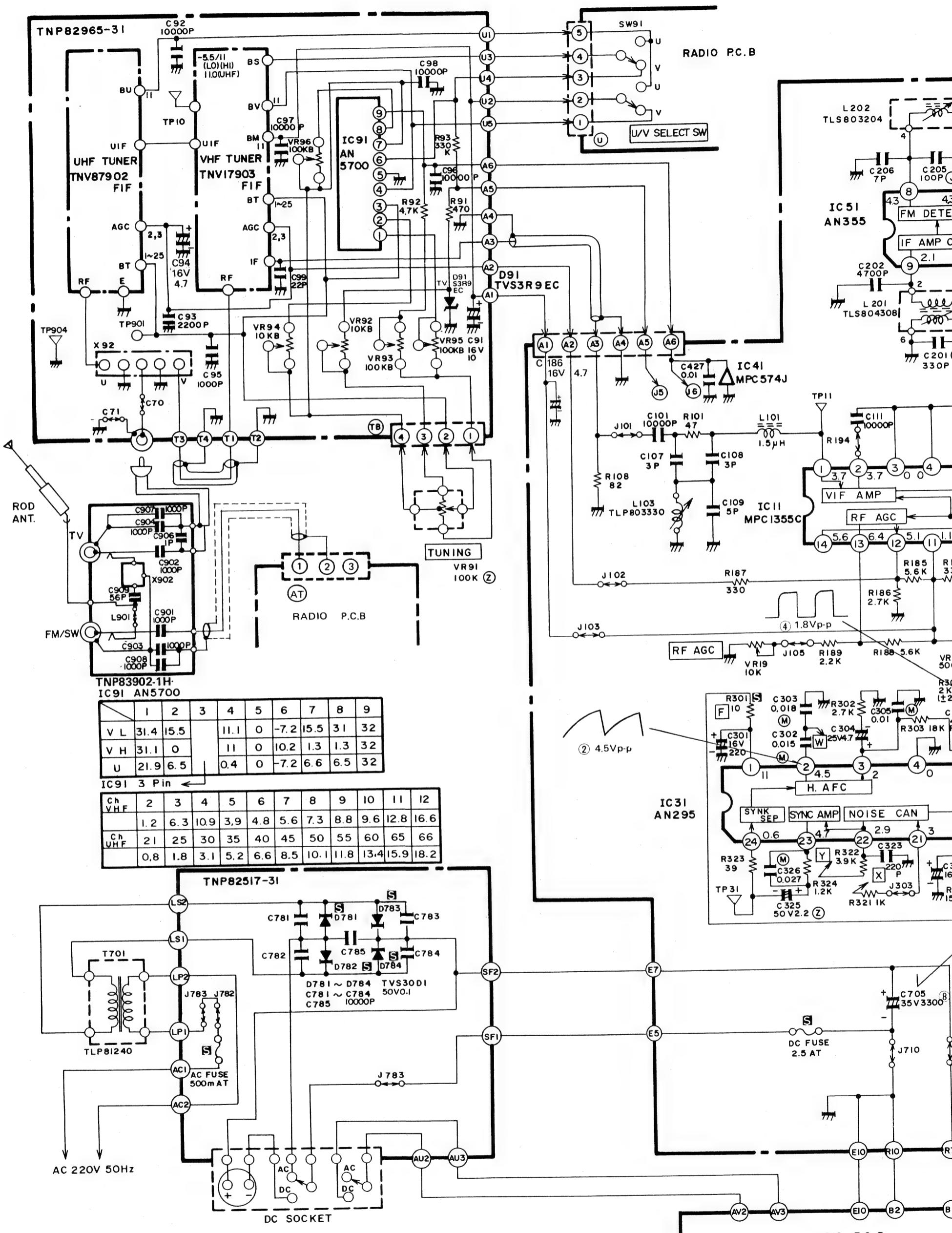


CONDUCTOR VIEWS

MAIN CIRCUIT BOARD
TNP81870-39H TNP81870H3Z
TNP81870HIX



SCHEMATIC DIAGRAM FOR M



NOTE

1. RESISTOR

All resistors are carbon 1/4W resistor, unless otherwise noted the following marks.
Unit of resistance is OHM (Ω), (K = 1,000, M = 1,000,000)

△ : Solid resistor
 □ : Wire wound resistor
 └ : Fuse resistor

● : Metal oxide resistor
 ○ : Thermistor

2. CAPACITOR

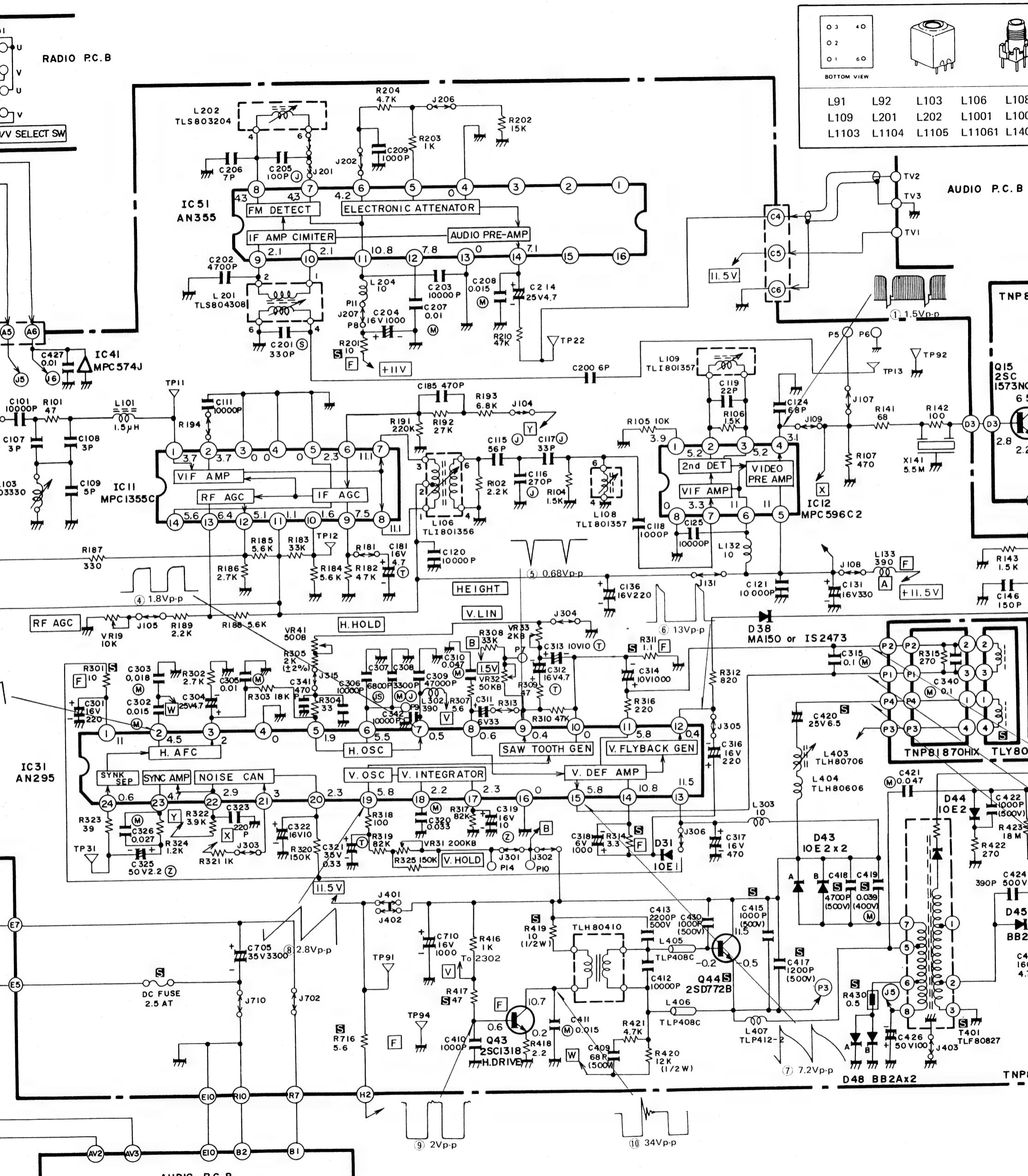
All capacitors are ceramic 50V capacitor, unless otherwise noted.
Unit of capacitance is μF , unless otherwise noted.

(M) : Polyester capacitor
 (H) : Electrolytic capacitor

S : Polystyrene

STATIC DIAGRAM FOR MODEL TR-1200S (CHASSIS NO. 12B01-E)

TRANSFORMER TERMINAL INFORMATION



2. CAPACITOR
All capacitors are ceramic 50V capacitor, unless otherwise noted the following marks.
Unit of capacitance is μF , unless otherwise noted.
 M : Polyester capacitor S : Polystyrene capacitor
 +---+ : Electrolytic capacitor

3. COIL
Unit of inductance is μH .

4. TEST POINT
▽ : Test point position

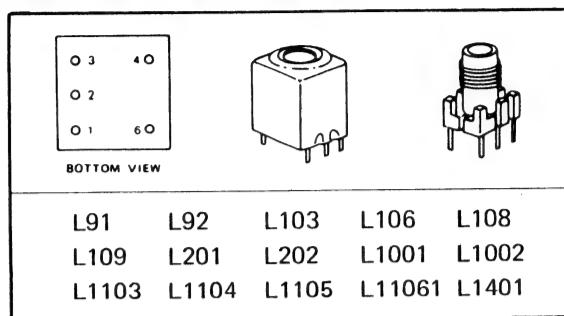
5. VOLTAGE MEASUREMENT

Voltage is measured by a volt ohm meter with DC 500K OHM/V receiving normal signal,
when all controls are set to the maximum position.

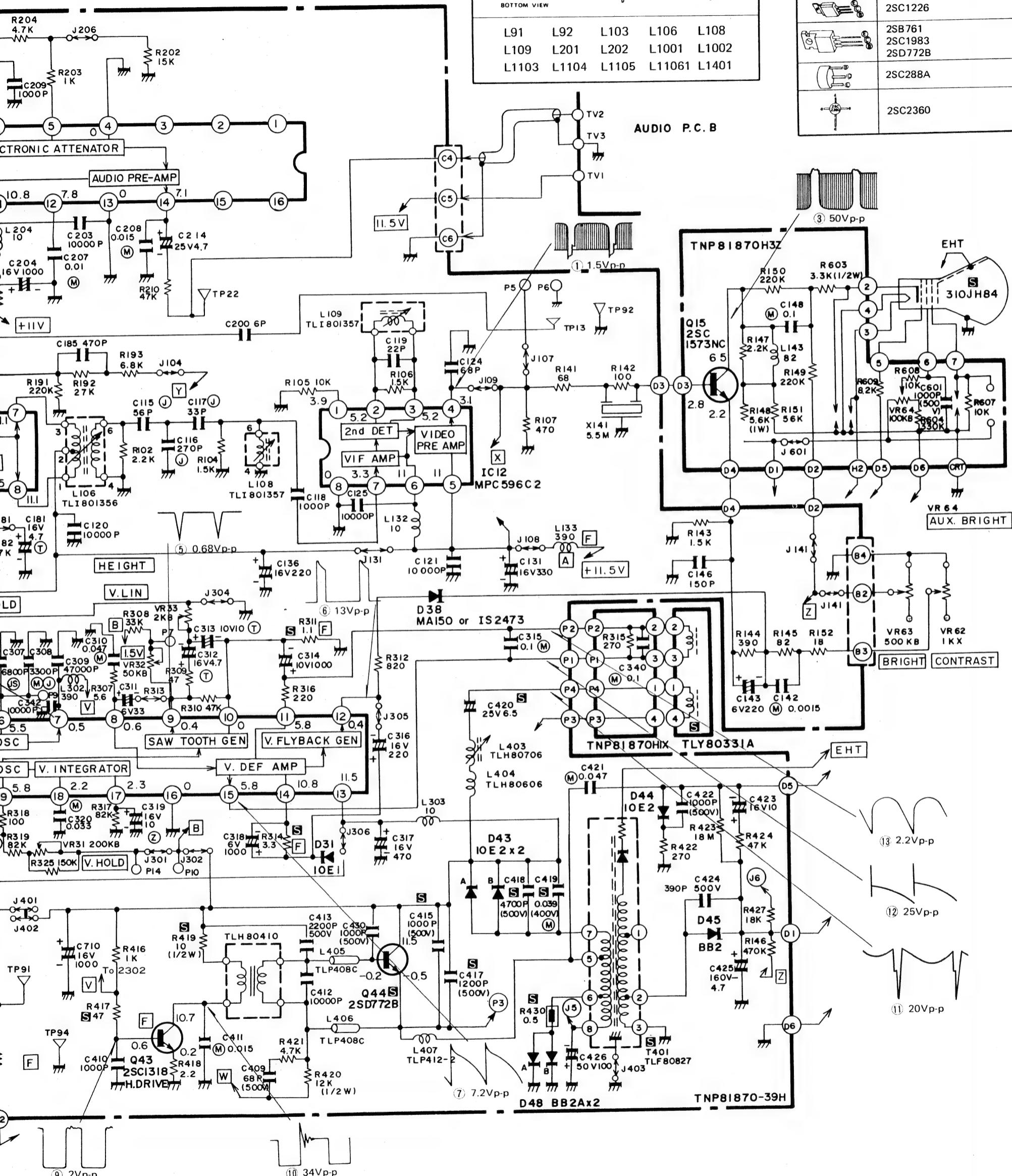
- Number in red circle indicates waveform number
- When arrow mark (↑) is found, connection is arrow
- When schematic diagram of a board is described with dotted line (— · —).
- This schematic diagram is the latest at the time

L TR-1200S (CHASSIS NO. 12B01-E)

TRANSFORMER TERMINAL INFORMATION



TRANSISTOR BASE INFORMATION		
	2SA564 2SB621ANC 2SC644 2SC828	2SC1318 2SC1359 2SC1383 2SC1573NC
	2SC1686 2SC1687	
	2SC2348A	
	2SC1226	
	2SB761 2SC1983 2SD772B	
	2SC288A	
	2SC2360	



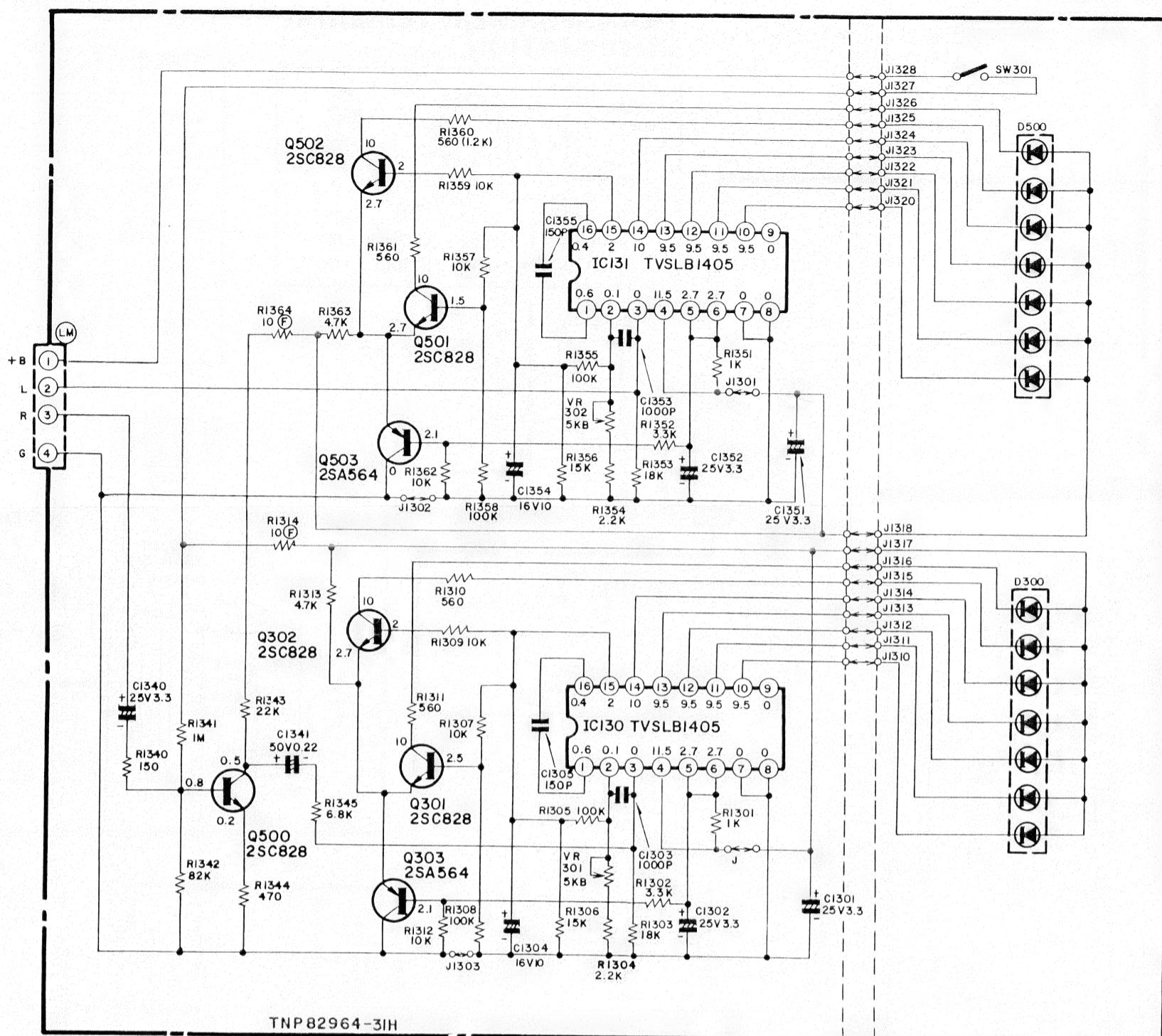
3. COIL
Unit of inductance is μ H.

4. TEST POINT
 : Test point position

5. VOLTAGE MEASUREMENT
Voltage is measured by a volt ohm meter with DC 500K OHM/V receiving normal signal, when all controls are set to the maximum position.

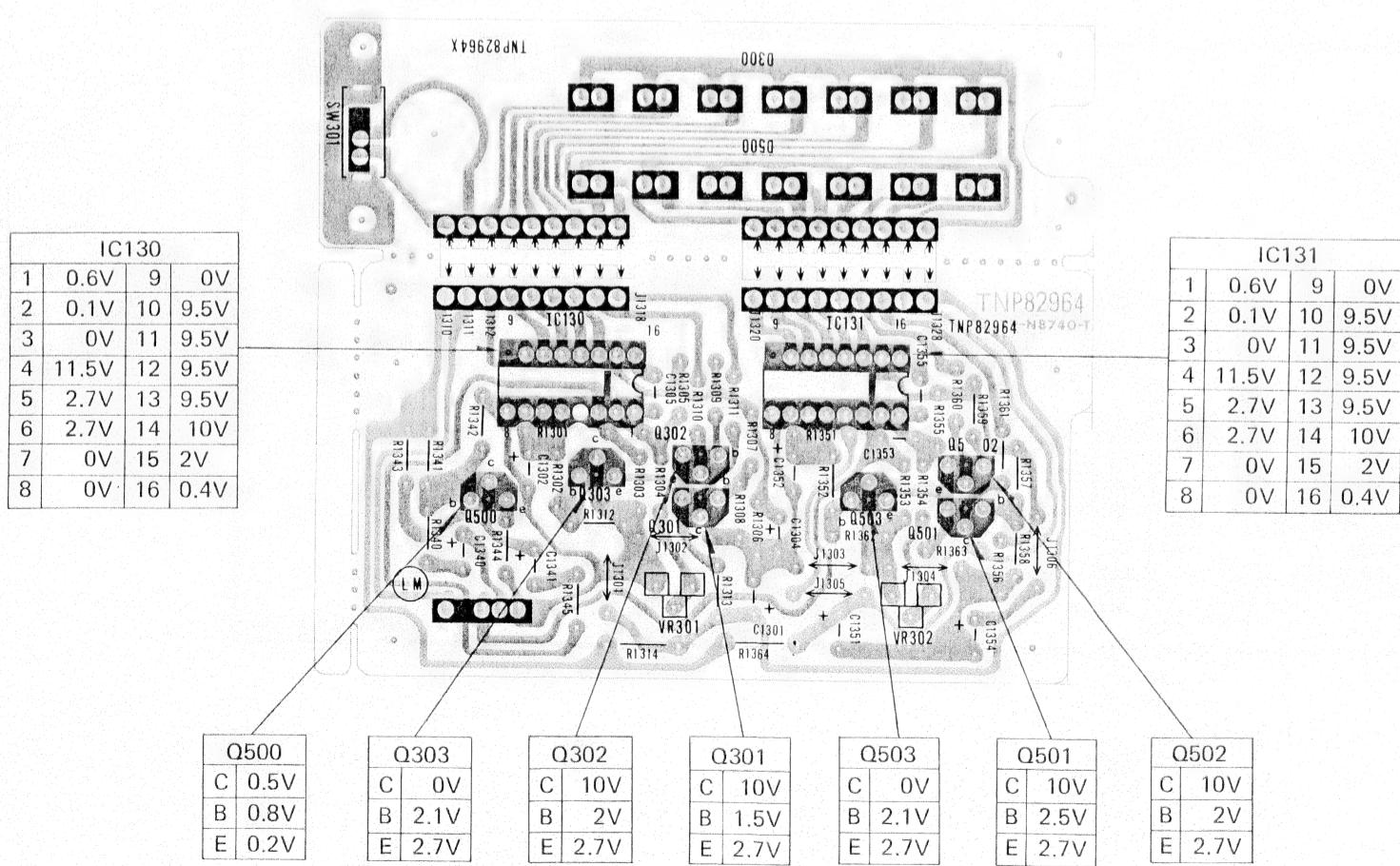
6. Number in red circle indicates waveform number.
7. When arrow mark () is found, connection is easily found along with the direction of an arrow.
8. When schematic diagram of a board is described in more than two places, they are encircled with dotted line (—).
9. This schematic diagram is the latest at the time of printing and subject to change without notice.

SCHEMATIC DIAGRAM FOR LED METER



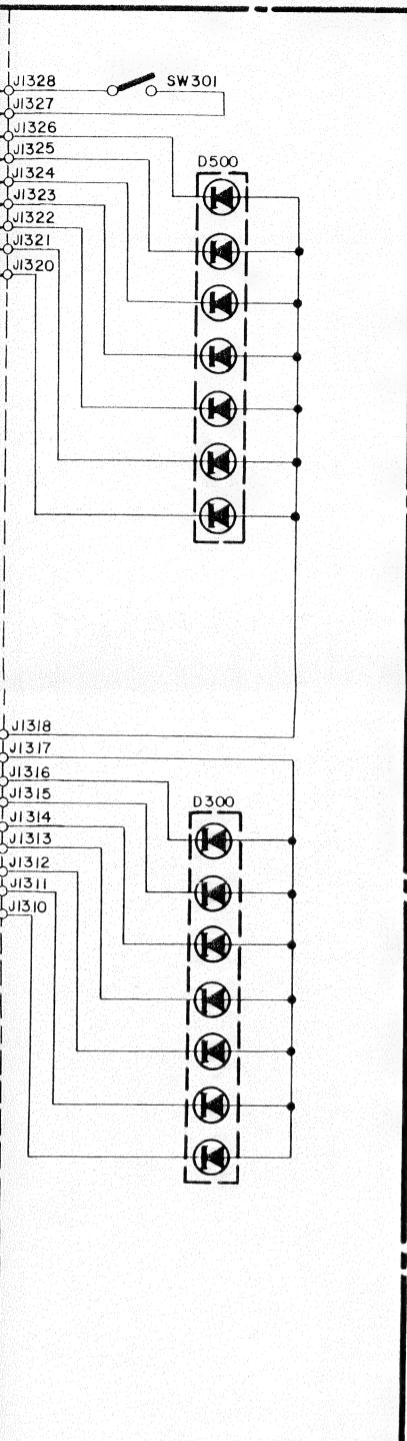
LED METER CIRCUIT BOARD

TNP82964-31H



CONDUCTOR VIEWS
AUDIO CIRCUIT BOARD
TNP82927-33

TER



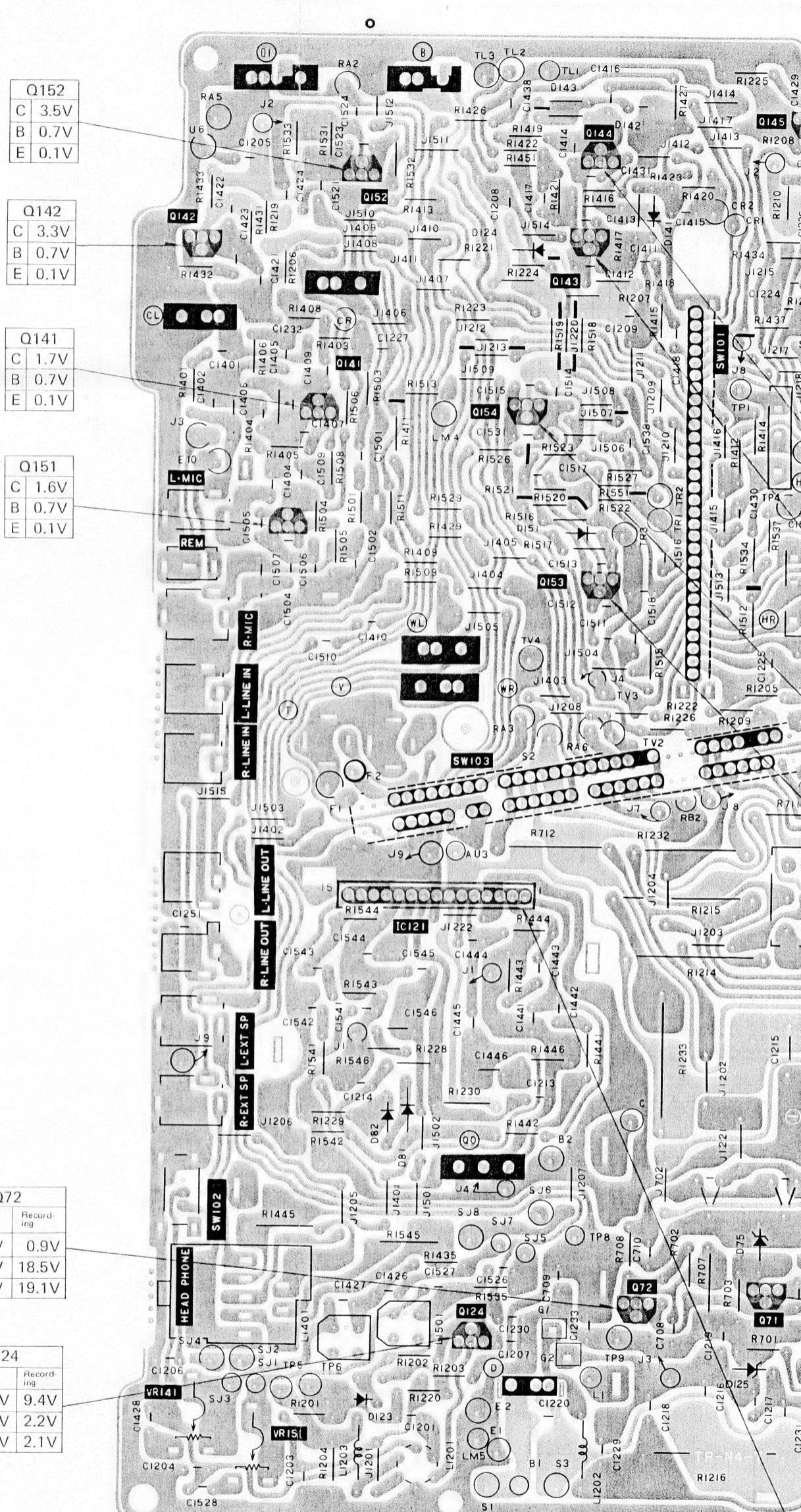
IC131			
1	0.6V	9	0V
2	0.1V	10	9.5V
3	0V	11	9.5V
4	11.5V	12	9.5V
5	2.7V	13	9.5V
6	2.7V	14	10V
7	0V	15	2V
8	0V	16	0.4V

Q502	C 10V
	B 2V
	E 2.7V

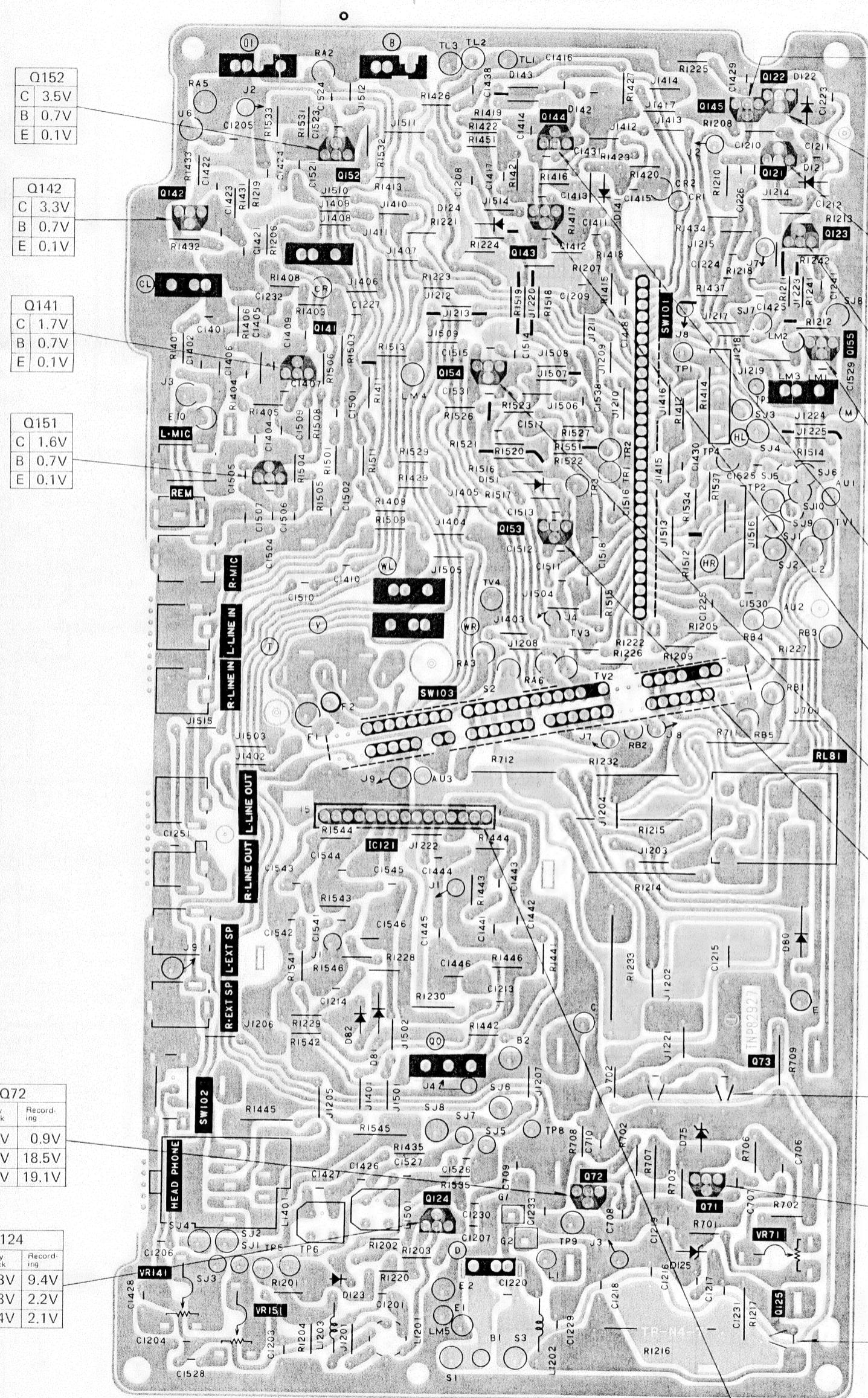
Q72			
C	0V	0.9V	
B	23V	18.5V	
E	24V	19.1V	

Q124			
C	11.8V	9.4V	
B	11.8V	2.2V	
E	11.4V	2.1V	

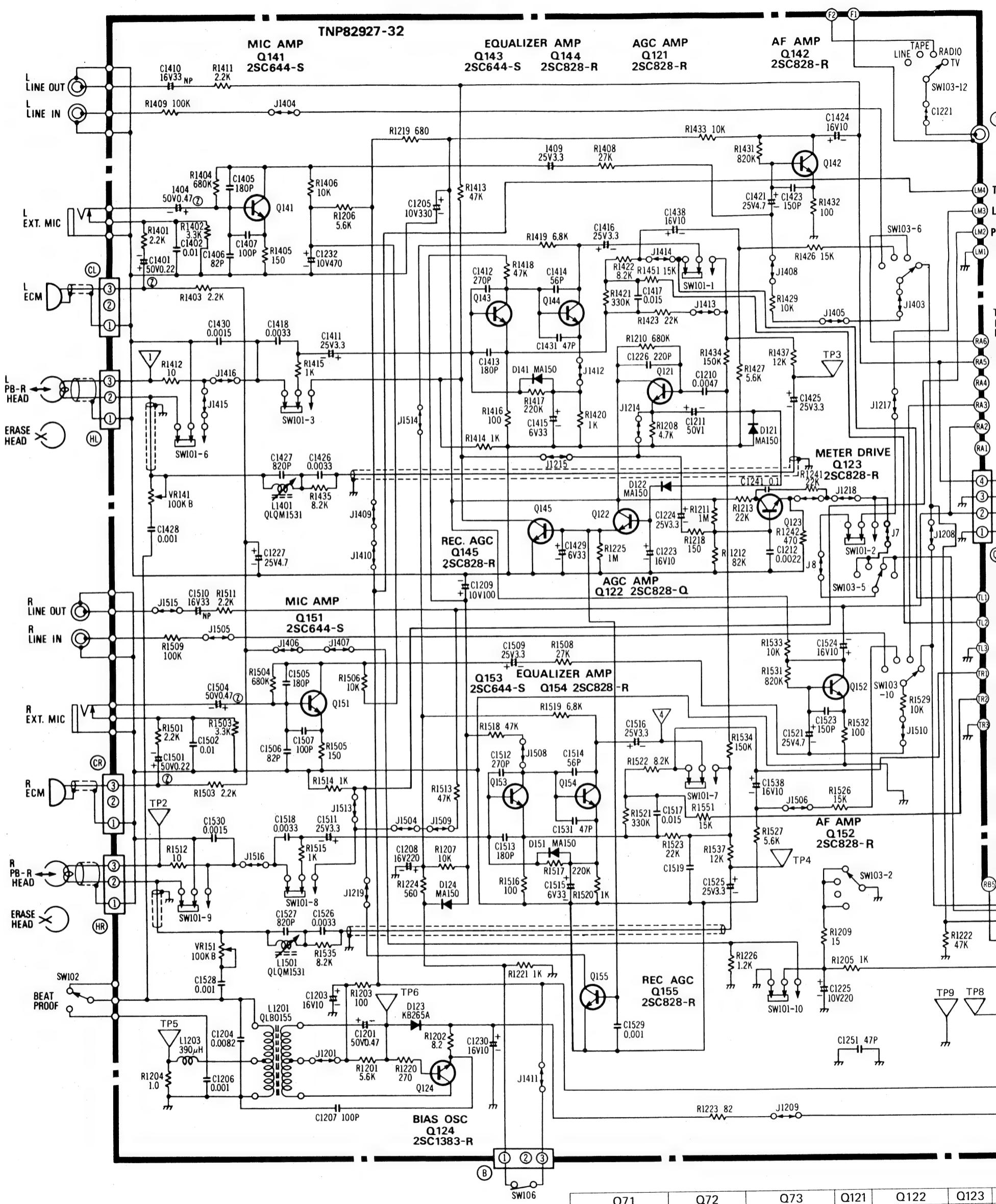
IC121												
1	5.8V	5.3V	0V	0V	11.9V	2.8V	24V	0V	23.5V	2.8V	11.8V	0V
Recording	5.1V	4.6V	0V	0V	9.4V	2.1V	19.7V	0V	19V	2.2V	9.5V	0V



CONDUCTOR VIEWS
AUDIO CIRCUIT BOARD
TNP82927-33

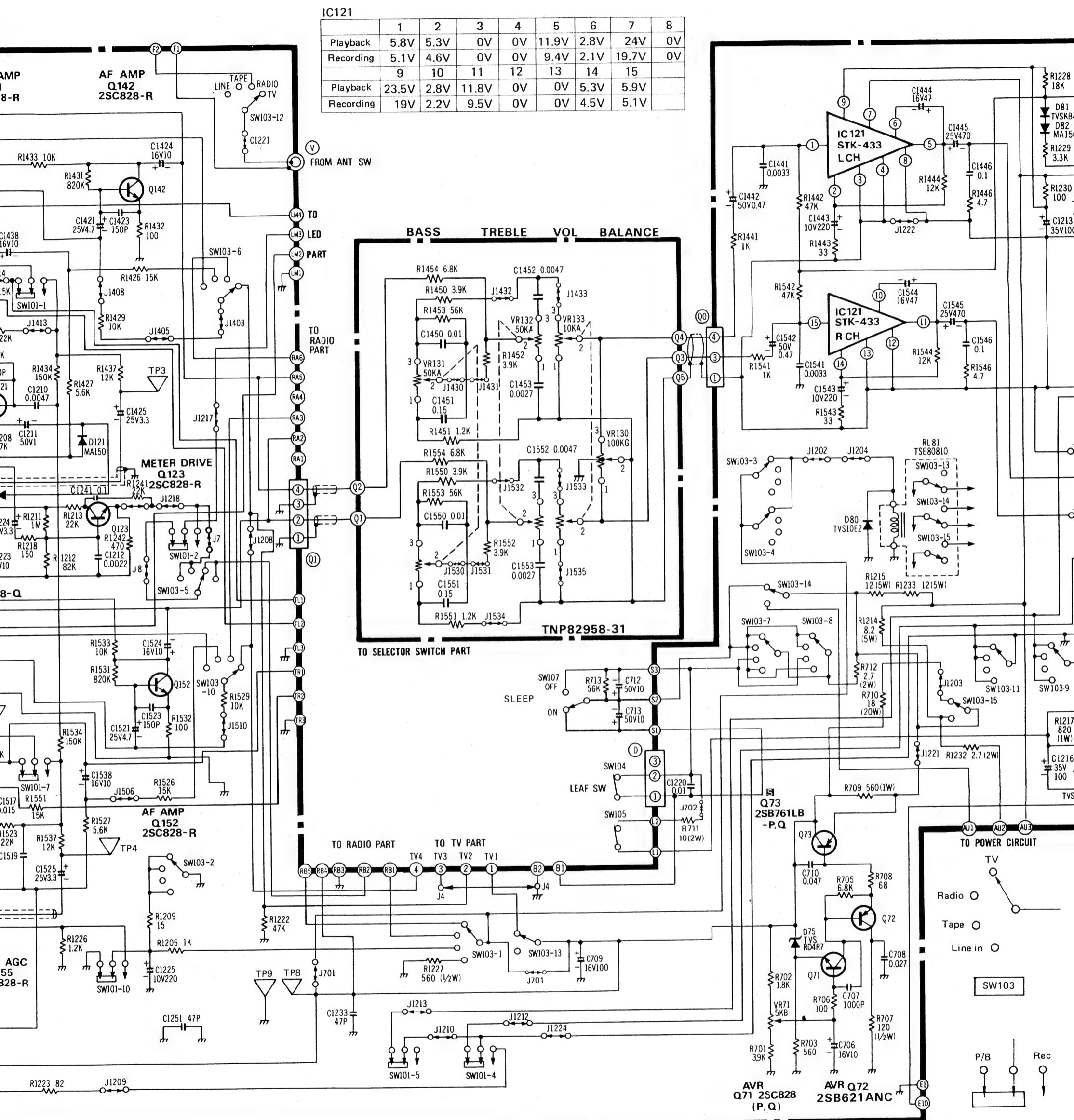


SCHEMATIC DI



Q71		Q72		Q73		Q121		Q122		Q123	
	Play Back	Record-ing	Play Back	Record-ing	Play Back	Record-ing		Play Back	Record-ing		
C	23V	18.5V	0V	0.9V	11.8V	11.8V	9.3V	9.3V	9.3V	9.3V	6V
B	7.7V	7.7V	23V	18.5V	23.9V	19.6V	6V	0.9V	1.2V	0.6V	
E	7.1V	7.1V	24V	19.1V	24.3V	20.2V	5.6V	0.4V	0.6V	0.05V	

SCHEMATIC DIAGRAM FOR AUDIO



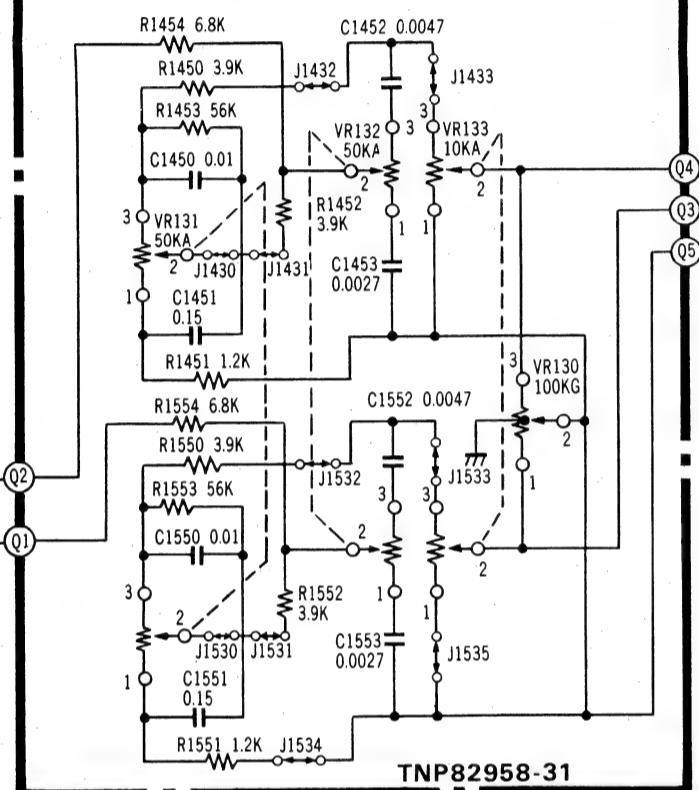
Q72		Q73		Q121	Q122		Q123	Q124		Q125		Q141	Q142	Q143	Q144	Q145		Q151	Q152	Q153	Q154	Q155	
Play Back	Record-ing	Play Back	Record-ing		Play Back	Record-ing		Play Back	Record-ing						Play Back	Record-ing				Play Back	Record-ing		
0V	0.9V	11.8V	11.8V	9.3V	9.3V	9.3V	6V	11.8V	9.4V	23.8V	19.7V	1.7V	3.3V	1.3V	6.4V	0V	0V	1.6V	3.5V	1.3V	6.4V	0V	0V
23V	18.5V	23.9V	19.6V	6V	0.9V	1.2V	0.6V	11.8V	2.2V	8.7V	8.7V	0.7V	0.7V	0.6V	1.3V	0.4V	0.6V	0.7V	0.7V	0.6V	1.3V	0.3V	0.6V
24V	19.1V	24.2V	20.2V	5.6V	0.4V	0.6V	0.05V	11.4V	2.1V	8.2V	8.2V	0.1V	0.1V	0V	0.6V	0V	0V	0.1V	0.1V	0V	0.7V	0V	0V

GRAM FOR AUDIO

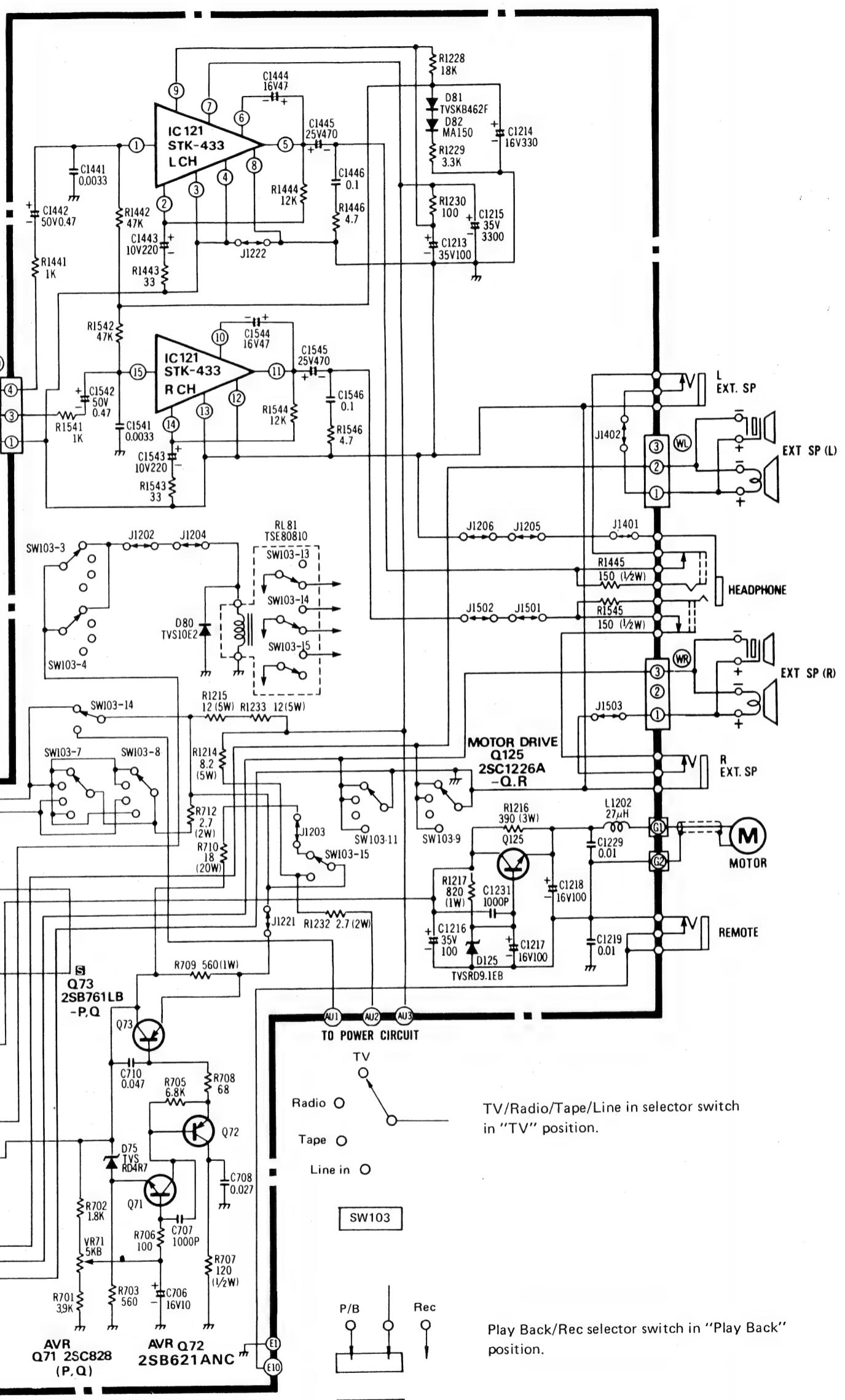
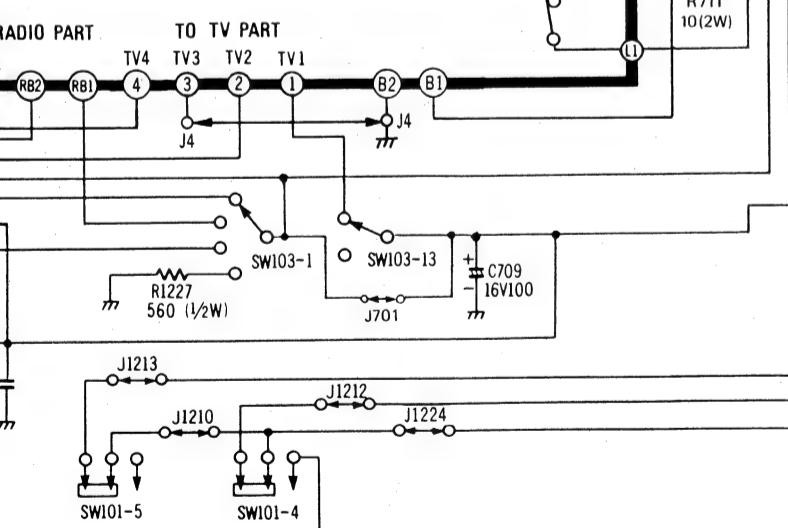
	1	2	3	4	5	6	7	8
Record-back	5.8V	5.3V	0V	0V	11.9V	2.8V	24V	0V
Recording	5.1V	4.6V	0V	0V	9.4V	2.1V	19.7V	0V
Play-back	9	10	11	12	13	14	15	
Recording	23.5V	2.8V	11.8V	0V	0V	5.3V	5.9V	
Play-back	19V	2.2V	9.5V	0V	0V	4.5V	5.1V	

T SW

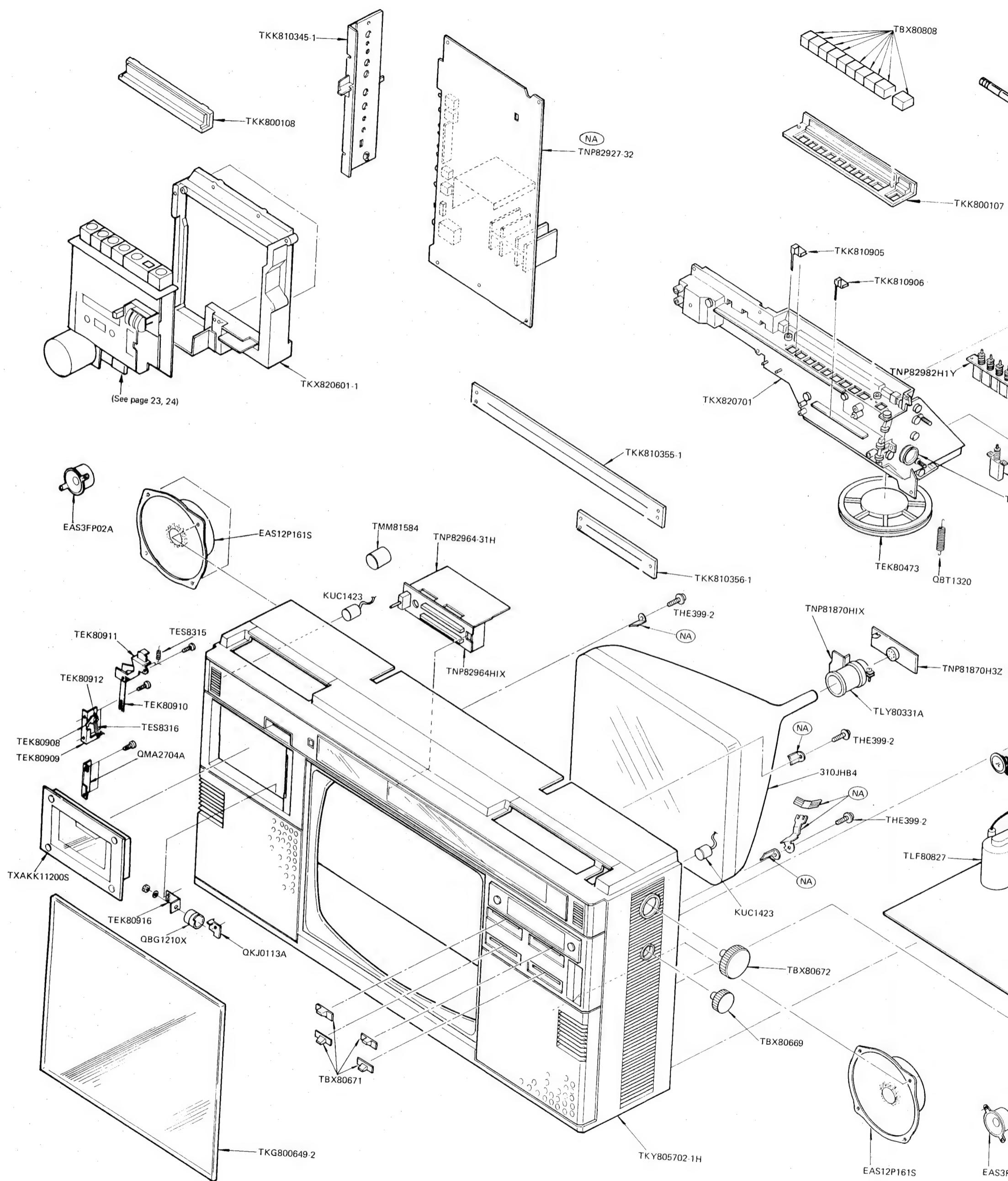
BASS TREBLE VOL BALANCE



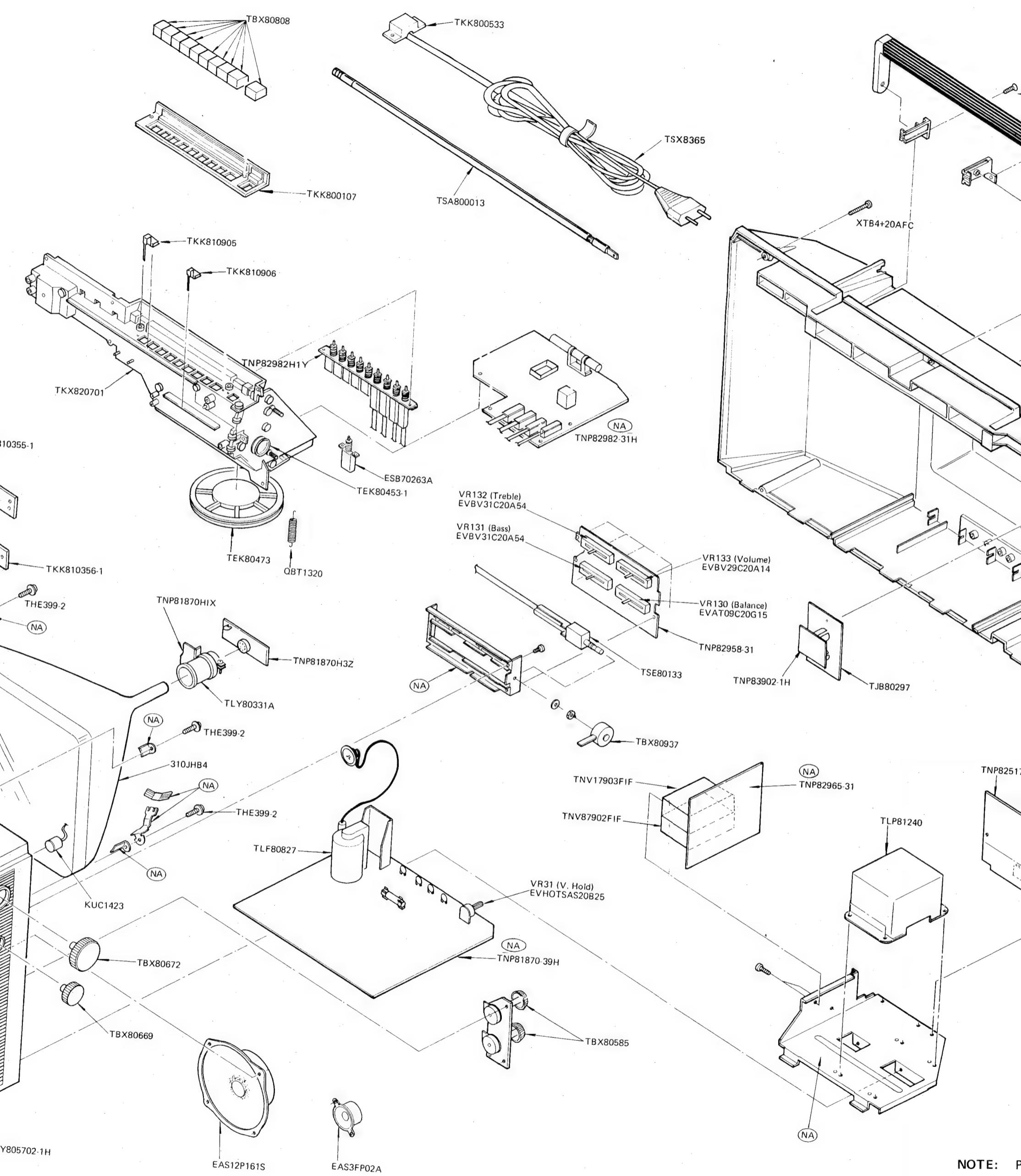
TO SELECTOR SWITCH PART



TELEVISION EXPLORATION



TELEVISION EXPLODED VIEWS

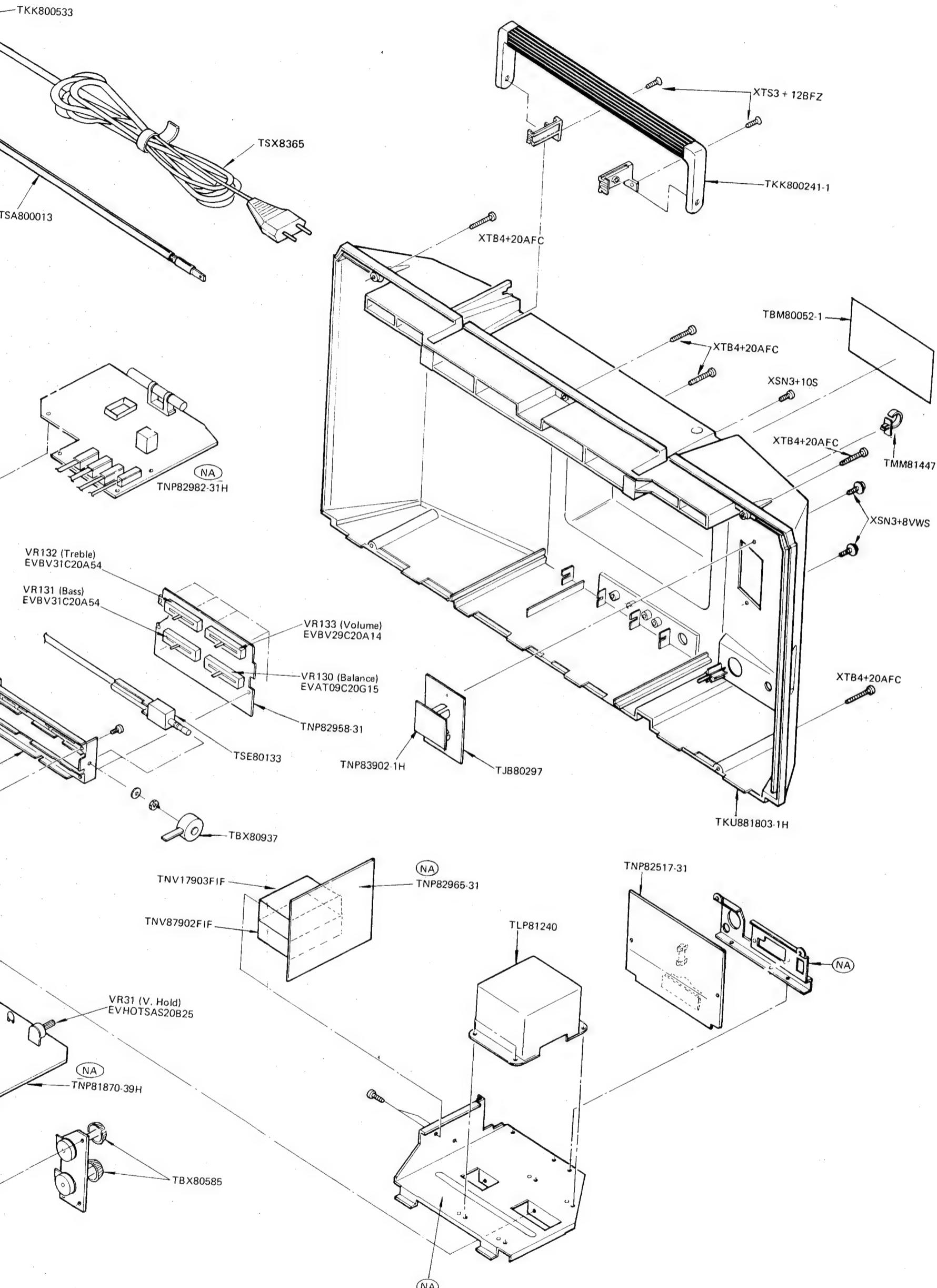


NOTE: P

U

ANMERKU

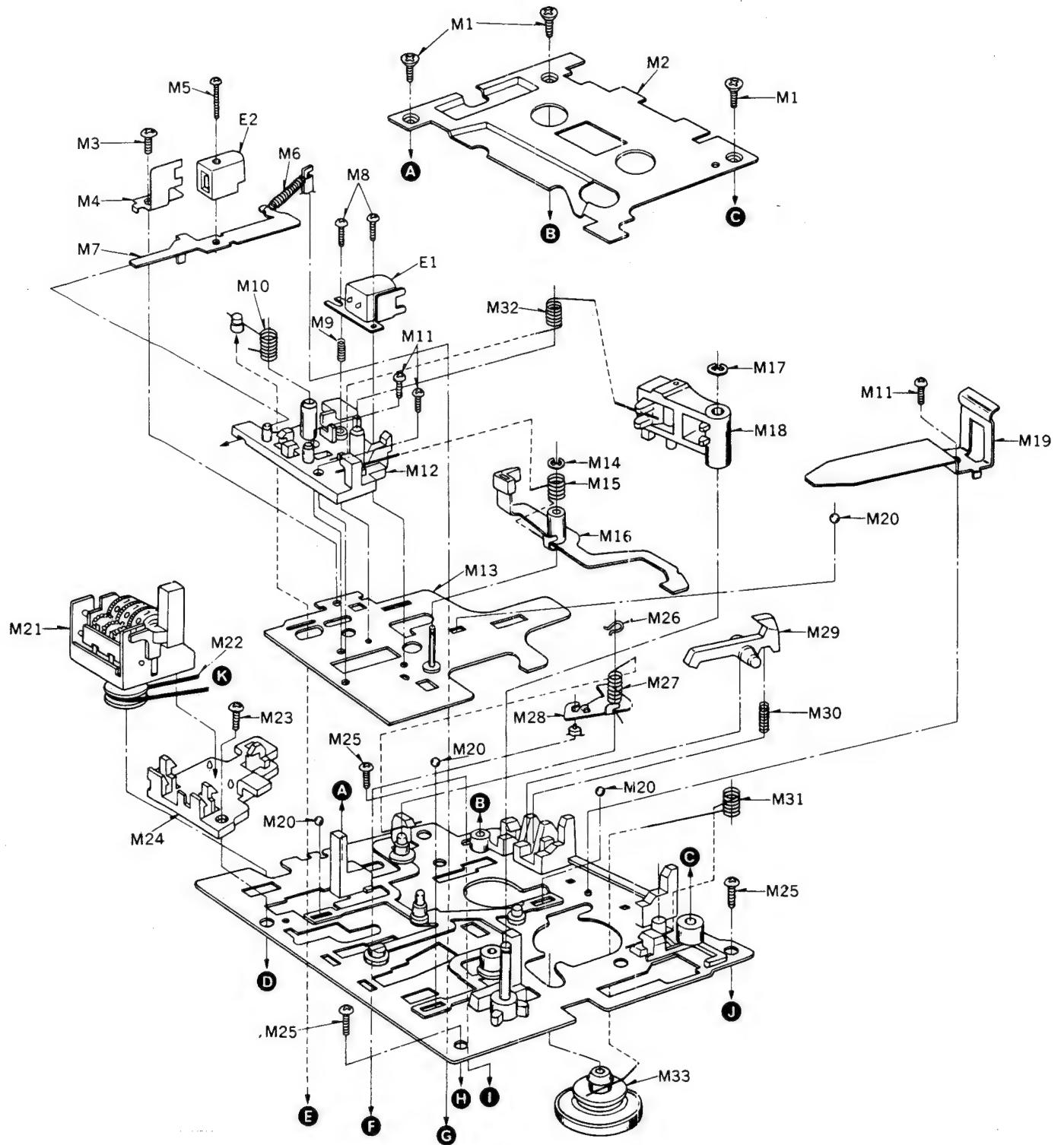
VIEWS



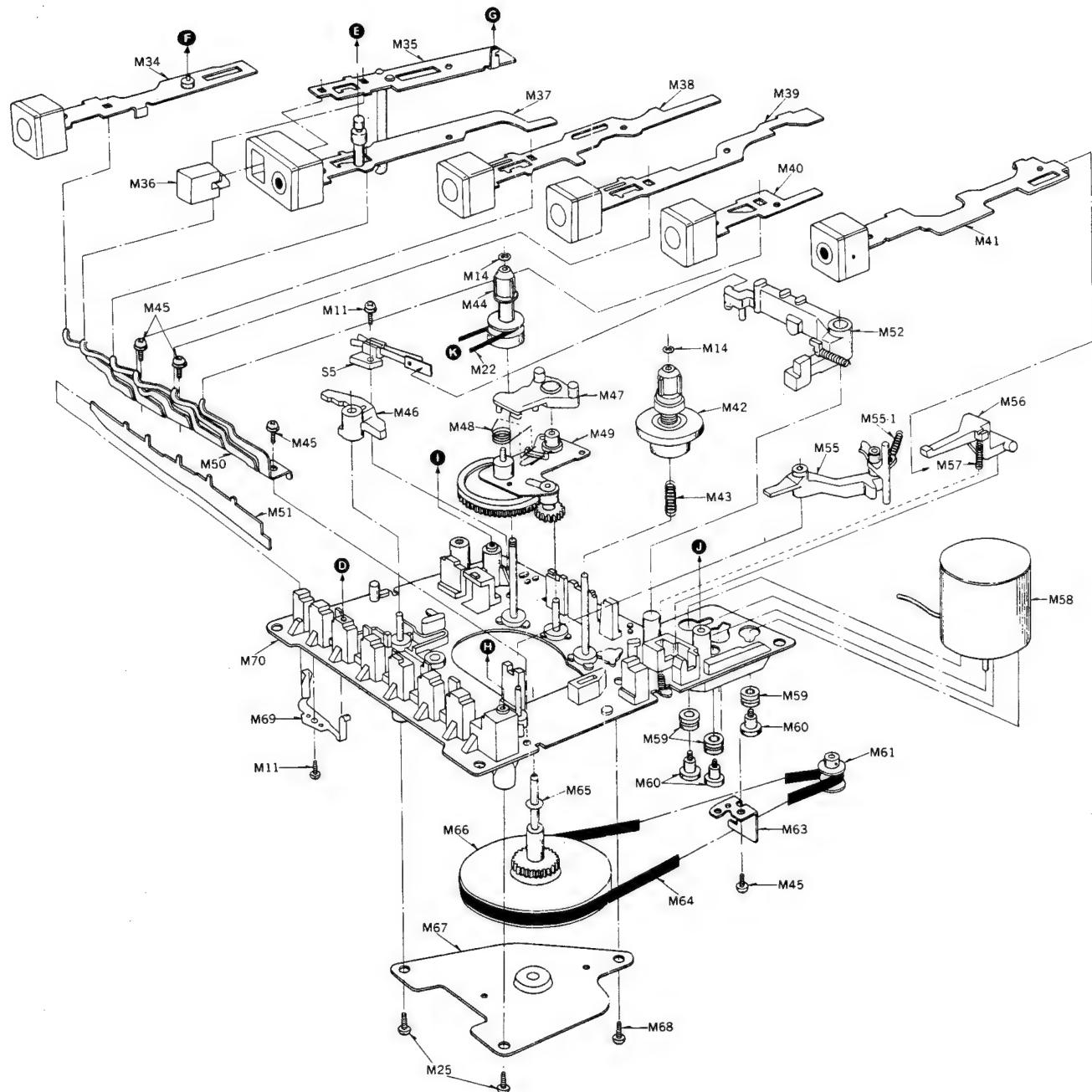
NOTE: Parts or Components marked with (NA) and unlisted are not available as a replacement parts.

ANMERKUNG: Durch (NA) gekennzeichnete Ersatz- und Bauteile sowie nicht aufgeführte Teile sind nicht als Ersatzteile lieferbar.

CASSETTE RECORDER EXPLODED VIEWS (1)



CASSETTE RECORDER EXPLODED VIEWS (2)



REPLACEMENT PARTS LIST

Note: TNP81870-39H (Main Circuit Board), TNP82927-32(Audio Circuit Board), TNP82965-31(Tuner Circuit Board) and TNP82982-31H(Radio Circuit Board) are not available as a complete Printed Circuit Board.

ERSATZTEILLISTE

Anmerkung: TNP81870-39H (Hauptleiterplatte), TNP82927-32 (Ton-Leiterplatte), TNP82965-31 (Tuner-Leiterplatte) und TNP82982-31H (Radio-Leiterplatte) sind nicht als komplette Leiterplatte lieferbar.

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
CABINET AND MAIN CHASSIS PARTS					
	TKY805701-1H	Front Cabinet Complete		TNP81870H1X	Deflection Yoke Circuit Board Complete
	TKU881803-1H	Rear Cover Complete		TNP81870H3Z	Picture Tube Socket Circuit Board Complete
	TKG800649-2	Front Protector		TNP82958-31	Tone Circuit Board Complete
	TKK800533	Cord Holder		TNP82964-31H	Led Circuit Board Complete
	TKK800107	Radio Knob Dish		TNP82964H1X	Led Meter Circuit Board Complete
	TKK800108	Cassette Knob Dish		TNP82982H1X	Stereo LED Circuit Board Complete
	TKK800241-1	Handle Complete		TNP82982H1Y	8-Range Selector Switch Circuit Board Complete
	TKK810345-1	Line Terminal Board		TNP82517-31	Power Circuit Board Complete
	TKK810355-1	Radio Indicator		TNP83902-1H	Antenna Circuit Board Complete
	TKK810356-4	TV Indicator		EAS12P161S	Speaker (woofer)
	TKK810903	Radio Reflection Plate		EAS3FP02A	Speaker (Tweeter)
	TKK810904	TV Reflection Plate		KUC1423	Microphone
	TKK810905	Radio Dial Guide		TSA800013	Rod Antenna
	TKK810906	TV Dial Guide		TSX8365	Power Cord
	TXAKK11200S	Cassette Cover Complete		ESB70263A	Power Switch
	TKX820601-1	Cassette Bracket		TSE80133	TV/Radio/Tape/Line Function Switch
	TKX820701	Radio Bracket		TSE80427	MW/SW/FM Selector Switch
	TBM80052-1	Model Plate		TSE80428	LW Selector Switch
	TBX80808	Push Knob		TSE80607	Sleep Switch
	TBX80672	Radio Tuning Knob		ECEA1HS010	Electrolytic 1μF 50V
	TBX80669	TV Tuning Knob		C712	
	TBX80937	TV/Radio/Tape/Line Selector Knob		TSE80427	Carbon Resistor 56kΩ ±5% ¼W
	TBX80671	Slide Knob		TSE80428	Contrast Control 1kΩX
	TBX80585	Rear Knob		TSE80607	Bright Control 500kΩB
	TEK80453-1	TV Pulley		VR13	Tuning Control 100kΩB
	TEK80473	Radio Pulley		XBA2C05TR0	Fuse 0.5A
	TEK80908	Cassette Cover Stopper		TJB80297	Antenna Terminal Board
	TEK80909	Cassette Cover Holding Bracket		TJS828270	75Ω Terminal
	TEK80910	Cassette Cover Stopper Movement Bracket		TJT8526-1	3-P Socket Housing
	TEK80911	Cassette Cover Stopper Movement Bracket		TJT8718	Socket Housing Terminal
	TEK80912	Cassette Cover Shaft Holder		TXAJT3P226	3-P Mini. Connector Ass'y (for Sleep SW.)
	TEK80916	Damper		TXAJT3P228	3-P Mini. Connector Ass'y (for Microphone)
	TES8315	Cassette Cover Stopper Spring (A)		TXAJT3P268	3-P Mini. Connector Ass'y (for Microphone)
	TES8316	Cassette Cover Stopper Spring (B)		TXAJT3P230	3-P Mini. Connector Ass'y (for Speaker)
	TMM81447	Cord Hook		TXAJT3P231	3-P Mini. Connector Ass'y (for Speaker)
	TMM81584	Microphone Rubber		TXAJT3P249A	3-P Mini. Connector Ass'y (for Cassette Mecha)
	QBG1210X	Vibration Defend Rubber		TXAJT3P250	3-P Mini. Connector Ass'y (for Connector P.C.B.)
	QBT1320	Coil Spring		TXAJT4P112	4-P Mini. Connector Ass'y (for Radio)
	QDP1678	Roller (Big)			
	QDP1684	Roller (Small)			
	QKJ0113A	Cassette Case Holder			
	QMA2704A	Cassette Case Spring Angle			
	QMN8001	Roller Shaft			
	QXS1064	Dial Shaft			
	QYR0158	Cassette Mecha Chassis Cover Complete			
	RDY31A	Roller Shaft (Big)			
	310JHB4	Picture Tube			
	TLP81240	Power Trans.			
	TLY80331A	Deflection Yoke			

Ref. No.	Part No.	Description		Ref. No.	Part No.	Description						
SCREWS & WASHERS												
	XTB4+20AFC	Rear Cover Mounting Screw		C906	ECCD1H010CC	Ceramic	1PF ±0.25PF 50V					
	XTS3+12BFZ	Handle Mounting Screw		C907	ECKD2H102KB2	Ceramic	1,000PF ±10% 500V					
	XSN3+10S	Rod Antenna Mounting Screw		C908	ECKD2H102KB2	Ceramic	1,000PF ±10% 500V					
	XSN3+8VWS	Antenna Terminal Board Mounting Screw		C909	ECCD1H560J	Ceramic	56PF ±5% 50V					
	XWG3VW	Antenna Terminal Board Mounting Washer		X902	EXCFT88108C	FM Band Pass Filter						
	THE399-2	Picture Tube Mounting Screw		TNP82517-31								
	XTN26+8G	Cassette Cover Shaft Hoder Mounting Screw		D781	TVS30D1	Power Rectifier						
	TPD309026	Front Window Protector		D782	TVS30D1	Power Rectifier						
	TPC812481	Outer Carton		D783	TVS30D1	Power Rectifier						
	TXAPD21200	Filler Complete		D784	TVS30D1	Power Rectifier						
	TPE84014	Set Cover		C781	ECFWE104KDY	Ceramic	0.1μF ±10% 50V					
	TQB811302	Fun Bag		C782	ECFWE104KDY	Ceramic	0.1μF ±10% 50V					
	TQB810302	Instruction Book		C783	ECFWE104KDY	Ceramic	0.1μF ±10% 50V					
				C784	ECFWE104KDY	Ceramic	0.1μF ±10% 50V					
				C785	ECQM05103JZ	Polyester	0.01μF ±5% 50V					
				FS1	TJC3316	Fuse Holder						
				FS2								
				AU	TJS868250 TJS82805	3-P Mini. Connector Plug DC. Socket						
TNP82964H1X												
D300	LN07201PF	7-Range LED Meter										
D500	LN07201PF	7-Range LED Meter										
SW301	TSE80328	LED On-Off Switch										
TNP82982H1X												
D106	LN28RP	Stereo LED		TNP81870-39H								
				I.C								
				IC11	TVSMPC1355C	Video-IF						
				IC12	TVSMPC596C2	Video-DET.						
				IC31	AN295	Sync. Sep. Amp. V/H osc.						
				IC41	TVSMPC574J	Zener						
				IC51	AN355	Audio						
TNP81870H1X												
C340	ECQM05104JZ	Polyester	0.1μF ±5%	50V	TRANSISTORS							
R315	ERD25TJ271	Carbon	270Ω ±5%	1/4W	Q43	2SC1318	Horiz. Drive					
				Q44	2SD772LB	Horiz. Output						
TNP81870H3Z												
Q15	2SC1573NC	Trangistor (Vided Output)		DIODES								
L143	TLU820K106C	Peaking Coil	82μH	D31	TVS10E1	Rectifier						
C148	EOQM05104JZ	Polyester	0.1μF ±5%	50V	D38	MA150	Blanking					
C601	ECKD2H102KB2	Ceramic	1,000PF ±10%	500V	D43A	TVS10E2	Damper					
R147	ERD25TJ222	Carbon	2.2kΩ ±5%	1/4W	D43B	TVS10E2	Damper					
R148	ERG1ANJ562	Metal Oxide Resistor	5.6kΩ ±5%	1W	D44	TVS10E2	Blanking					
R149	ERD25TJ224	Carbon	220kΩ ±5%	1/4W	D45	TVSBB2A	Rectifier					
R150	ERD25TJ224	Carbon	220kΩ ±5%	1/4W	D48A	TVSBB2A	Rectifier					
R151	ERD25TJ563	Carbon	56kΩ ±5%	1/4W	D48B	TVSBB2A	Rectifier					
R603	ERC12GJ332	Solid	3.3kΩ ±5%	1/4W								
R604	ERD25TJ334	Carbon	330kΩ ±5%	1/4W	COILS & TRANSFORMERS							
R607	ERD25TJ103	Carbon	10kΩ ±5%	1/4W	L101	TLU1R4M106C	Peaking Coil	1.5μH				
R608	ERD25TJ103	Carbon	10kΩ ±5%	1/4W	L103	TLI803330	Sound Trap Coil					
R609	ERD25TJ822	Carbon	8.2kΩ ±5%	1/4W	L106	TLI801356	Video If Trans.					
VR64	EVTVDUA00B55	Sub. Bright Control	500kΩB	L108	TLI801357	Video If Trans.						
	TJS25640V	Picture Tube Socket		L109	TLI801357	Video If Trans.						
TNP83902-1H												
C901	ECKD2H102KB2	Ceramic	1,000PF ±10%	500V	L132	TLU100K106C	Peaking Coil	10μH				
C902	ECKD2H102KB2	Ceramic	1,000PF ±10%	500V	L133	TLU391K106C	Peaking Coil	390μH				
C903	ECKD2H102KB2	Ceramic	1,000PF ±10%	500V	L201	TLS804308	Sound-If Input Coil					
C904	ECKD2H102KB2	Ceramic	1,000PF ±10%	500V	L202	TLS803204	Sound Det. Trans.					
				L204	TLU100K106C	Peaking Coil	10μH					
				L302	TLU391K106C	Peaking Coil	390μH					
				L303	TLU100K106C	Peaking Coil	10μH					
				L403	TLH80706	Horiz. Width Coil						

Ref. No.	Part No.	Description					Ref. No.	Part No.	Description			
L404	TLH80606	Horiz. Lin. Coil					C312	ECSZ16EF4R7N	Tantal	4.7μF	16V	
L405	TLP408	Choke Coil					C313	ECSZ10EF10Y	Tantal	10μF	10V	
L406	TLP408	Choke Coil					C314	ECEA1AS102	Electrolytic	1,000μF	10V	10V
L407	TLP412-2	Choke Coil					C315	ECQM05104JZ	Polyester	0.1μF	±5%	50V
T401	TLF80827	Flyback Trans.					C316	ECEA1CS221	Electrolytic	220μF		16V
T402	TLH80410	Horiz. Drive Trans.					C317	ECEA1CS471	Electrolytic	470μF		16V
		CAPACITORS					C318	ECEA0JS102	Electrolytic	1,000μF		6.3V
C101	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	-0%	C319	ECEA16Z10E	Electrolytic	10μF		16V
C107	ECCD1H030CT	Ceramic	3PF	±0.25PF	50V		C320	ECQM05333JZ	Polyester	0.033μF	±5%	50V
C108	ECCD1H030CT	Ceramic	3PF	±0.25PF	50V		C321	TCSZ35EFR33V	Tantal	0.33μF		35V
C109	ECCD1H050CS	Ceramic	5PF	±0.25PF	50V		C322	ECEA1CS100	Electrolytic	10μF		16V
C111	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	-0%	C323	ECCD1H221J	Ceramic	220PF	±5%	50V
							C325	ECEA1HS2R2	Electrolytic	2.2μF		50V
C115	ECCD1H560JS	Ceramic	56PF	±5%	50V		C326	ECQM05273JZ	Polyester	0.027μF	±5%	50V
C116	ECCD1H271J	Ceramic	270PF	±5%	50V		C341	ECKD1H471KB2	Ceramic	470PF	±10%	50V
C117	ECCD1H330JS	Ceramic	33PF	±5%	50V		C342	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V
C118	ECKD1H102KB2	Ceramic	1000PF	±10%	50V		C409	ECCD2H680K	Ceramic	68PF	±10%	500V
C119	ECCD1H220J	Ceramic	22PF	±5%	50V		C410	ECKD1H102KB2	Ceramic	1,000PF	±10%	50V
C120	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	-0%	C411	ECQM05153JZ	Polyester	0.015μF	±5%	50V
C121	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	-0%	C412	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V
C124	ECCD1H680J	Ceramic	68PF	±5%	50V		C413	ECKD2H222KB2	Ceramic	2200PF	±10%	500V
C125	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	-0%	C415	ECKD2H102KB2	Ceramic	1,000PF	±10%	400V
C131	ECEA1CS331	Electrolytic	330μF		16V		C417	ECKD2H122KB	Ceramic	1,200PF	±10%	500V
							C418	ECKD2H472KB	Ceramic	4,700PF	±10%	500V
C136	ECEA1CS221	Electrolytic	220μF		16V		C419	ECQM4393KZ	Polyester	0.039μF	±10%	400V
C142	ECQM05152JZ	Polyester	1,500PF	±5%	50V		C420	ECEA25W6R5Z	Electrolytic	6.5μF		25V
C143	ECEA0JS221	Electrolytic	220μF		6.3V		C421	ECQM05473JZ	Polyester	0.047μF	±5%	50V
C146	ECCD1H151J	Ceramic	150PF	±5%	50V		C422	ECKD2H102KB2	Ceramic	1,000PF	±10%	500V
C181	ECSZ16EF4R7N	Tantal	4.7μF		16V		C423	ECEA160V10Z	Electrolytic	10μF		160V
C185	ECKD1H471KB2	Ceramic	470PF	±5%	50V		C424	ECKD2H391KB9	Ceramic	390PF	±10%	500V
C186	ECEA16Z4C7E	Electrolytic	4.7μF		16V		C425	ECEA160V4R7	Electrolytic	4.7μF		160V
C188	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	-0%	C426	ECEA50V100Y	Electrolytic	100μF		50V
C200	ECCD1H060CC	Ceramic	6PF	±0.25PF	50V		C427	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V
C201	ECQS1331JWT	Styrol	330PF	±0.25PF	100V		C430	ECKD2H102KB2	Ceramic	1,000PF	±10%	500V
C202	ECKD1H473ZF	Ceramic	0.047μF	+80%	50V	-20%	C705	ECET35R3300W	Electrolytic	3,300μF		35V
C203	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	-0%	C710	ECEA1CS102	Electrolytic	1,000μF		16V
C204	ECEA1CS102	Electrolytic	1000μF		16V			RESISTORS				
C205	ECCD1H820JP2	Ceramic	82PF	±5%	50V		R101	ERD25TJ470	Carbon	47Ω	±5%	1/4W
C206	ECCD1H070CC	Ceramic	7PF	±0.25PF	50V		R102	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W
C207	ECQM05103JZ	Polyester	0.01μF	±5%	50V		R104	ERD25TJ152	Carbon	1.5kΩ	±5%	1/4W
C208	ECQM05153JZ	Polyester	0.015μF	±5%	50V		R105	ERD25TJ103	Carbon	10kΩ	±5%	1/4W
							R106	ERD25TJ152	Carbon	1.5kΩ	±5%	1/4W
C209	ECKD1H102KB2	Ceramic	1,000PF	±10%	50V		R107	ERD25TJ471	Carbon	470Ω	±5%	1/4W
C214	ECEA1ES4R7	Electrolytic	4.7μF		25V		R108	ERD25TJ820	Carbon	82Ω	±5%	1/4W
C301	ECEA1CS470	Electrolytic	4.7μF		16V		R141	ERD25TJ151	Carbon	150Ω	±5%	1/4W
C302	ECQM05153JZ	Polyester	0.015μF	±5%	50V		R142	ERD25TJ101	Carbon	100Ω	±5%	1/4W
C303	ECQM05183JZ	Polyester	0.018μF	±5%	50V		R143	ERD25TJ152	Carbon	1.5kΩ	±5%	1/4W
C304	ECEA1ES4R7	Electrolytic	4.7μF		25V		R144	ERD25TJ391	Carbon	390Ω	±5%	1/4W
C305	ECQM05103JZ	Polyester	0.01μF	±5%	50V		R145	ERD25TJ820	Carbon	82Ω	±5%	1/4W
C306	ECKD1H103PF2	Ceramic	0.01μF	-0%	50V		R146	ERD25TJ474	Carbon	470kΩ	±5%	1/4W
C307	ECQS1682JWT	Styrol	6800PF	±5%	100V		R152	ERD25TJ180	Carbon	18Ω	±5%	1/4W
C308	ECQM05332JZ	Polyester	3300PF	±5%	50V		R182	ERD25TJ473	Carbon	47kΩ	±5%	1/4W
C309	ECKD1H473ZF	Ceramic	0.047μF	+80%	50V	-20%	R183	ERD25TJ333	Carbon	33kΩ	±5%	1/4W
C310	ECQM05473JZ	Polyester	0.047μF	±5%	50V							
C311	ECEA0JS330	Electrolytic	33μF		6.3V							

Ref. No.	Part No.	Description					Ref. No.	Part No.	Description			
R184	ERD25TJ562	Carbon	5.6kΩ	±5%	1/4W		XBA2C25TR0	Fuse	2.5A			
R185	ERD25TJ103	Carbon	10kΩ	±5%	1/4W		TJC3316	Fuse Holder				
R186	ERD25TJ272	Carbon	2.7kΩ	±5%	1/4W							
R187	ERD25TJ331	Carbon	330Ω	±5%	1/4W							
R188	ERD25TJ562	Carbon	5.6kΩ	±5%	1/4W							
R189	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W							
R191	ERD25TJ224	Carbon	220kΩ	±5%	1/4W	Q71	2SC828A	AVR				
R192	ERD25TJ273	Carbon	27kΩ	±5%	1/4W	Q72	2SB621ANC	AVR				
R193	ERD25TJ682	Carbon	6.8kΩ	±5%	1/4W	Q73	2SB761LB	AVR				
R201	ERD25FJ100	Carbon	10Ω	±5%	1/4W	Q121	2SC828A	Record Level				
R202	ERD25TJ153	Carbon	15kΩ	±5%	1/4W	Q122	2SC828A	ALC Amp.				
R203	ERD25TJ102	Carbon	1kΩ	±5%	1/4W							
R204	ERD25TJ472	Carbon	4.7kΩ	±5%	1/4W	Q123	2SC828A	Meter Amp.				
R210	ERD25TJ473	Carbon	47kΩ	±5%	1/4W	Q124	2SC1383	Bias Osc				
R301	ERD25FJ100	Carbon	10Ω	±5%	1/4W	Q125	2SC1226A	AVR (Motor)				
R302	ERD25TJ272	Carbon	2.7kΩ	±5%	1/4W	Q141	2SC644S	Ext. Mic. Amp.				
R303	ERD25TJ183	Carbon	18kΩ	±5%	1/4W	Q142	2SC828A	Pri. Amp.				
R304	ERD25TJ330	Carbon	33Ω	±5%	1/4W							
R305	ERD25TG2001	Carbon	2kΩ	±2%	1/4W	Q143	2SC644S	Equalizer				
R307	ERD25TJ562	Carbon	5.6kΩ	±5%	1/4W	Q144	2SC828A	Equalizer				
R308	ERD25TJ333	Carbon	33kΩ	±5%	1/4W	Q145	2SC828A	Alc				
R309	ERD25TJ470	Carbon	47Ω	±5%	1/4W	Q151	2SC644S	Ext. Mic. Amp.				
R310	ERD25TJ472	Carbon	4.7kΩ	±5%	1/4W	Q152	2SC828A	Pri. Amp.				
R311	ERD14FJ1R1	Carbon	1.1Ω	±5%	1/4W							
R312	ERD25TJ821	Carbon	820Ω	±5%	1/4W	Q153	2SC644S	Equalizer				
R314	ERD25FJ3R3	Carbon	3.3Ω	±5%	1/4W	Q154	2SC828A	Equalizer				
R316	ERD25TJ221	Carbon	220Ω	±5%	1/4W	Q155	2SC828A	Alc.				
R317	ERD25TJ823	Carbon	82kΩ	±5%	1/4W							
R318	ERD25TJ101	Carbon	100Ω	±5%	1/4W	IC121	TVSSTK433	Audio Output				
R319	ERD25TJ823	Carbon	82kΩ	±5%	1/4W	D75	TVSRD4R7EB	Zenner				
R320	ERD25TJ154	Carbon	150kΩ	±5%	1/4W	D80	TVS10E2	Audio Output Rectifier				
R321	ERD25TJ102	Carbon	1kΩ	±5%	1/4W	D81	TVSKB462F	Audio Output Bias				
R322	ERD25TJ392	Carbon	3.9kΩ	±5%	1/4W	D82	MA26	Audio Output Bias				
R323	ERD25TJ390	Carbon	39Ω	±5%	1/4W							
R324	ERD25TJ122	Carbon	1.2kΩ	±5%	1/4W	D121	MA150	AGC				
R325	ERD25TJ154	Carbon	150kΩ	±5%	1/4W	D122	MA150	AGC				
R416	ERD25TJ102	Carbon	1kΩ	±5%	1/4W	D123	TVSKB265A	OSC.				
R417	ERD25FJ470	Carbon	47Ω	±5%	1/4W	D124	MA150	Diode				
R418	ERD25TJ2R2	Carbon	2.2Ω	±5%	1/4W	D125	TVSRD9R1EB	Zenner				
R419	ERQ12HJ100	Fuseble	10Ω	±5%	1/4W							
R420	ERC12GJ123	Carbon	12kΩ	±5%	1/4W	D141	MA150	Diode				
R421	ERD25TJ472	Carbon	4.7kΩ	±5%	1/4W	D151	MA150	Diode				
R422	ERQ14AJ271	Fuseble	270Ω	±5%	1/4W							
R423	ERC12GJ186	Solid	18MΩ	±5%	1/4W	L1201	QLB0155	Record Trans.				
R424	ERD25TJ473	Carbon	47kΩ	±5%	1/4W	L1202	TLU270K106C	Peaking Coil 27μH ±10%				
R427	ERC12GJ183	Solid	18kΩ	±5%	1/4W	L1203	TLU391K106C	Peaking Coil 390μH ±10%				
R430	TRPF6BMR50A	Posistor				L1401	QLQM1531	Trap Coil				
R716	ERD25FJ5R6	Carbon	5.6Ω	±5%	1/4W	L1501	QLQM1531	Trap Coil				
		CONTROLS										
VR19	EVTVOUA00B14	RF AGC	10kΩB			C1200	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	
VR31	EVH0TAS20B25	Vert. hold	200kΩB			C1201	ECEA50ZR47	Electrolytic	0.47μF	-0%	50V	
VR32	EVTVOUA00B54	Vert. Height	50kΩB			C1203	ECEA1CS101	Electrolytic	100μF		16V	
VR33	EVTVOUA00B23	Vert. Lin.	2kΩB			C1204	ECQM05822JJZ	Polyester	8200PF	±5%	50V	
VR41	EVTVOUA00B52	Horiz. Hold	500ΩB			C1205	ECEA1CS331	Electrolytic	330μF		16V	
		OTHER PARTS					C1206	ECQM05102JJZ	Polyester	1,000PF	±5%	50V
X141	EFCS5R5MJ1	5.5MHz Cerap					C1207	ECCD1H101K	Ceramic	100PF	±10%	50V
							C1208	ECEA1CS221	Electrolytic	220μF		16V
							C1209	ECEA1AS101	Electrolytic	100μF		10V
							C1210	ECQM05472JJZ	Polyester	4,700PF	±5%	50V
							C1211	ECEA1HS010	Electrolytic	1μF		50V

Ref. No.	Part No.	Description				Ref. No.	Part No.	Description			
C1212	ECQM05222KZ	Polyester	2200PF	±10%	50V	C1501	ECEA50ZR22	Electrolytic	0.22µF	50V	
C1213	ECEA1VS101	Electrolytic	100µF		35V	C1502	ECQM05103JZ	Polyester	0.01µF	±5%	50V
C1214	ECEA1CS331	Electrolytic	330µF		16V	C1504	ECEA50ZR47	Electrolytic	0.47µF	50V	
C1215	ECET35R3300S	Electrolytic	3300µF		35V	C1505	ECCD1H181J	Ceramic	180PF	±5%	50V
						C1506	ECCD1H820J2	Ceramic	82PF	±5%	50V
C1216	ECEA1VS101	Electrolytic	100µF		35V	C1507	ECCD1H101K	Ceramic	100PF	±10%	50V
C1217	ECEA1CS101	Electrolytic	100µF		16V	C1509	ECEA1ES3R3	Electrolytic	3.3µF	25V	
C1218	ECEA1CS101	Electrolytic	100µF		16V	C1510	ECEA16N33	Electrolytic	33µF	16V	
C1219	ECKD1H103PF2	Ceramic	0.01µF	+100%	50V	C1511	ECEA1ES3R3	Electrolytic	3.3µF	25V	
C1220	ECKD1H103PF2	Ceramic	0.01µF	+100%	50V	C1512	ECCD1H271J	Ceramic	270PF	±5%	50V
C1223	ECEA16Z10E	Electrolytic	10µF		16V	C1513	ECCD1H181J	Ceramic	180PF	±5%	50V
C1224	ECEA1ES3R3	Electrolytic	3.3µF		25V	C1514	ECCD1H560J	Ceramic	56PF	±5%	50V
C1225	ECEA1AS221	Electrolytic	220µF		10V	C1515	ECEA0JS330	Electrolytic	33µF	6.3V	
C1226	ECCD1H221J	Ceramic	220PF	±5%	50V	C1516	ECEA1ES3R3	Electrolytic	3.3µF	25V	
C1227	ECEA1ES4R7	Electrolytic	4.7µF		25V	C1517	ECQM05153JZ	Polyester	0.015µF	±5%	50V
C1229	ECKD1H103PF2	Ceramic	0.01µF	+100%	50V	C1518	ECQM05332JZ	Polyester	3,300PF	±5%	50V
C1230	ECEA1CS100	Electrolytic	10µF		16V	C1521	ECEA1ES4R7	Electrolytic	4.7µF	25V	
C1231	ECKD1H102KB2	Ceramic	1,000PF	±10%	50V	C1523	ECCD1H151J	Ceramic	150PF	±5%	50V
C1232	ECEA1AS471	Electrolytic	470µF		10V	C1524	ECEA1CS100	Electrolytic	10µF	16V	
C1233	ECCD1H470J	Ceramic	47PF	±5%	50V	C1525	ECEA1ES3R3	Electrolytic	3.3µF	25V	
C1241	ECEA50ZR22	Electrolytic	0.22µF		50V	C1526	ECQM05332JZ	Polyester	3,300PF	±5%	50V
C1251	ECCD1H470J	Ceramic	47PF	±5%	50V	C1527	ECQS1821JWJ	Polyester	820PF	±5%	100V
C1401	ECEA50ZR22	Electrolytic	0.22µF		50V	C1528	ECQM05102JZ	Polyester	1,000PF	±5%	50V
C1402	ECQM05103JZ	Polyester	0.01µF	±5%	50V	C1529	ECKD1H102KB2	Ceramic	1,000PF	±10%	50V
C1404	ECEA50ZR47	Electrolytic	0.47µF		50V	C1530	ECQM05152JZ	Polyester	1,500PF	±5%	50V
C1405	ECCD1H181J	Ceramic	180PF	±5%	50V	C1531	ECCD1H470J	Ceramic	47PF	±5%	50V
C1406	ECCD1H820J2	Ceramic	82PF	±5%	50V	C1538	ECEA1CS100	Electrolytic	10µF	16V	
C1407	ECCD1H101K	Ceramic	100PF	±10%	50V	C1541	ECQM05332JZ	Polyester	3,300PF	±5%	50V
C1409	ECEA1ES3R3	Electrolytic	3.3µF		25V	C1542	ECEA50ZR47	Electrolytic	0.47µF	50V	
C1410	ECEA16N33	Electrolytic	33µF		16V	C1543	ECEA1AS221	Electrolytic	220µF	10V	
C1411	ECEA1ES3R3	Electrolytic	3.3µF		25V	C1544	ECEA1CS470	Electrolytic	47µF	16V	
C1412	ECCD1H271J	Ceramic	270PF	±5%	50V	C1545	ECEA1ES471	Electrolytic	470µF	25V	
C1413	ECCD1H181J	Ceramic	180PF	±5%	50V	C1546	ECQM05104JZ	Polyester	0.1µF	±5%	50V
C1414	ECCD1H560J	Ceramic	56PF	±5%	50V	C706	ECEA1CS100	Electrolytic	10µF	16V	
C1415	ECEA0JS330	Electrolytic	33µF		16V	C707	ECCD1H101K	Ceramic	100PF	±10%	50V
C1416	ECEA1ES3R3	Electrolytic	3.3µF		25V	C708	ECQM05273JZ	Polyester	0.027µF	±5%	50V
C1417	ECQM05153JZ	Polyester	0.015µF	±5%	50V	C709	ECEA1CS101	Electrolytic	100µF	16V	
C1418	ECQM05332JZ	Polyester	3300PF	±5%	50V	C710	ECKD1H472KB2	Ceramic	4,700PF	±10%	50V
C1421	ECEA1ES4R7	Electrolytic	4.7µF		50V	RESISTORS					
C1423	ECCD1H151J	Ceramic	150PF	±5%	50V	R701	ERD25TJ392	Carbon	3.9kΩ	±5%	1/4W
						R702	ERD25TJ182	Carbon	1.8kΩ	±5%	1/4W
C1424	ECEA1CS100	Electrolytic	10µF		16V	R703	ERD25TJ561	Carbon	560Ω	±5%	1/4W
C1425	ECEA1ES3R3	Electrolytic	3.3µF		25V	R705	ERD25TJ682	Carbon	6.8kΩ	±5%	1/4W
C1426	ECQM05332JZ	Polyester	3300PF	±5%	50V	R106	ERD25TJ101	Carbon	100Ω	±5%	1/4W
C1427	ECQS1821JWT	Styrol	820PF	±5%	100V	R707	ERC12GJ121	Solid	120Ω	±5%	1/2W
C1428	ECQM05102JZ	Polyester	1,000PF	±5%	50V	R708	ERD25TJ680	Carbon	68Ω	±5%	1/2W
C1429	ECEA0JS330	Electrolytic	33µF		6.3V	R709	ERG1ANJ561	Metal Oxide	560Ω	±5%	1W
C1430	ECQM05152JZ	Polyester	1,500PF	±5%	50V	R710	TRF20HMJ180	Non Flame	18Ω	±5%	20W
C1431	ECCP1H470J	Ceramic	47PF	±5%	50V	R711	ERQ2CJ100	Fuseble	10Ω	±5%	2W
C1432	ECEA1CS100	Electrolytic	10µF		16V	R712	ERQ2CJ2R7	Fuseble	2.7Ω	±5%	2W
C1441	ECQM05332JZ	Polyester	3,300PF	±5%	50V	R1201	ERD25TJ562	Carbon	5.6kΩ	±5%	1/4W
C1442	ECEA50ZR47	Electrolytic	0.47µF		50V	R1202	ERD25TJ8R2	Carbon	8.2Ω	±5%	1/4W
C1443	ECEA1AS221	Electrolytic	220µF		10V	R1203	ERD25FJ101	Carbon	100Ω	±5%	1/4W
C1444	ECEA1CS470	Electrolytic	47µF		16V	R1205	ERD25TJ1R0	Carbon	1Ω	±5%	1/4W
C1445	ECEA1ES471	Electrolytic	470µF		25V	R1205	ERD25TJ102	Carbon	1kΩ	±5%	1/4W
C1446	ECQM05104JZ	Polyester	0.1µF	±5%	50V						

Ref. No.	Part No.	Description				Ref. No.	Part No.	Description			
R1206	ERD25TJ562	Carbon	5.6kΩ	±5%	1/4W	R1435	ERD25TJ822	Carbon	8.2kΩ	±5%	1/4W
R1207	ERD25TJ103	Carbon	10kΩ	±5%	1/4W	R1437	ERD25TJ272	Carbon	2.7kΩ	±5%	1/4W
R1208	ERD25TJ472	Carbon	4.7kΩ	±5%	1/4W	R1441	ERD25TJ102	Carbon	1kΩ	±5%	1/4W
R1209	ERD25TJ150	Carbon	15Ω	±5%	1/4W	R1442	ERD25TJ330	Carbon	33Ω	±5%	1/4W
R1210	ERD25TJ684	Carbon	680kΩ	±5%	1/4W	R1443	ERD25TJ330	Carbon	33Ω	±5%	1/4W
R1211	ERD25TJ105	Carbon	1MΩ	±5%	1/4W	R1444	ERD25TJ123	Carbon	12kΩ	±5%	1/4W
R1212	ERD25TJ823	Carbon	82kΩ	±5%	1/4W	R1445	ERD12FJ151	Carbon	150Ω	±5%	1/4W
R1213	ERD25TJ223	Carbon	22kΩ	±5%	1/4W	R1446	ERD25TJ4R7	Carbon	4.7Ω	±5%	1/4W
R1214	TRF5SK8R2	Non Flame	8.2Ω	±10%	5W	R1451	ERD25TJ153	Carbon	15kΩ	±5%	1/4W
R1215	TRF5SJ120	Non Flame	12Ω	±5%	5W	R1501	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W
R1216	TRF3SJ391	Non Flame	390Ω	±5%	3W	R1503	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W
R1217	ERG1ANJ821	Metal Oxide	820Ω	±5%	1W	R1504	ERD25TJ684	Carbon	680kΩ	±5%	1/4W
R1218	ERD25TJ151	Carbon	150Ω	±5%	1/4W	R1505	ERD25TJ151	Carbon	150Ω	±5%	1/4W
R1219	ERD25TJ681	Carbon	680Ω	±5%	1/4W	R1506	ERD25TJ103	Carbon	10kΩ	±5%	1/4W
R1220	ERD25TJ271	Carbon	270Ω	±5%	1/4W	R1508	ERD25TJ273	Carbon	27kΩ	±5%	1/4W
R1221	ERD25TJ102	Carbon	1kΩ	±5%	1/4W	R1509	ERD25TJ104	Carbon	100kΩ	±5%	1/4W
R1222	ERD25TJ473	Carbon	47kΩ	±5%	1/4W	R1511	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W
R1223	ERD25TJ820	Carbon	82Ω	±5%	1/4W	R1512	ERD25TJ100	Carbon	10Ω	±5%	1/4W
R1224	ERD25TJ561	Carbon	560Ω	±5%	1/4W	R1513	ERD25TJ473	Carbon	47kΩ	±5%	1/4W
R1225	ERD25TJ105	Carbon	1MΩ	±5%	1/4W	R1514	ERD25TJ102	Carbon	1kΩ	±5%	1/4W
R1226	ERD25TJ122	Carbon	1.2kΩ	±5%	1/4W	R1515	ERD25TJ102	Carbon	1kΩ	±5%	1/4W
R1227	ERC12GJ561	Solid	560Ω	±5%	1/2W	R1516	ERD25TJ101	Carbon	100Ω	±5%	1/4W
R1228	ERD25TJ183	Carbon	18kΩ	±5%	1/4W	R1517	ERD25TJ224	Carbon	220kΩ	±5%	1/4W
R1229	ERD25TJ332	Carbon	3.3kΩ	±5%	1/4W	R1518	ERD25TJ473	Carbon	47kΩ	±5%	1/4W
R1230	ERD14FJ101	Carbon	100Ω	±5%	1/4W	R1519	ERD25TJ682	Carbon	6.8kΩ	±5%	1/4W
R1232	TRF2SK2R7	Non Flame	2.7Ω	±10%	2W	R1520	ERD25TJ102	Carbon	1kΩ	±5%	1/4W
R1233	TRF5SJ120	Non Flame	12Ω	±5%	5W	R1521	ERD25TJ334	Carbon	330kΩ	±5%	1/4W
R1241	ERD25TJ223	Carbon	22kΩ	±5%	1/4W	R1522	ERD25TJ822	Carbon	8.2kΩ	±5%	1/4W
R1242	ERD25TJ471	Carbon	470Ω	±5%	1/4W	R1523	ERD25TJ223	Carbon	22kΩ	±5%	1/4W
R1401	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W	R1526	ERD25TJ153	Carbon	15kΩ	±5%	1/4W
R1403	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W	R1527	ERD25TJ562	Carbon	5.6kΩ	±5%	1/4W
R1404	ERD25TJ684	Carbon	680kΩ	±5%	1/4W	R1529	ERD25TJ103	Carbon	10kΩ	±5%	1/4W
R1405	ERD25TJ151	Carbon	150Ω	±5%	1/4W	R1531	ERD25TJ824	Carbon	820kΩ	±5%	1/4W
R1406	ERD25TJ103	Carbon	10kΩ	±5%	1/4W	R1532	ERD25TJ101	Carbon	100Ω	±5%	1/4W
R1408	ERD25TJ273	Carbon	27kΩ	±5%	1/4W	R1533	ERD25TJ103	Carbon	10kΩ	±5%	1/4W
R1409	ERD25TJ104	Carbon	100kΩ	±5%	1/4W	R1534	ERD25TJ154	Carbon	150kΩ	±5%	1/4W
R1411	ERD25TJ222	Carbon	2.2kΩ	±5%	1/4W	R1535	ERD25TJ822	Carbon	8.2kΩ	±5%	1/4W
R1412	ERD25TJ100	Carbon	10Ω	±5%	1/4W	R1537	ERD25TJ272	Carbon	2.7kΩ	±5%	1/4W
R1413	ERD25TJ473	Carbon	47kΩ	±5%	1/4W	R1541	ERD25TJ102	Carbon	1kΩ	±5%	1/4W
R1414	ERD25TJ102	Carbon	1kΩ	±5%	1/4W	R1542	ERD25TJ473	Carbon	47kΩ	±5%	1/4W
R1415	ERD25TJ102	Carbon	1kΩ	±5%	1/4W	R1543	ERD25TJ330	Carbon	33Ω	±5%	1/4W
R1416	ERD25TJ101	Carbon	100Ω	±5%	1/4W	R1544	ERD25TJ123	Carbon	12kΩ	±5%	1/4W
R1417	ERD25TJ224	Carbon	220kΩ	±5%	1/4W	R1545	ERD12FJ151	Carbon	150Ω	±5%	1/4W
R1418	ERD25TJ473	Carbon	47kΩ	±5%	1/4W	R1546	ERD25TJ4R7	Carbon	4.7Ω	±5%	1/4W
R1419	ERD25TJ682	Carbon	6.8kΩ	±5%	1/4W	R1551	ERD25TJ153	Carbon	15kΩ	±5%	1/4W
R1420	ERD25TJ102	Carbon	1kΩ	±5%	1/4W	CONTROLS					
R1421	ERD25TJ334	Carbon	330kΩ	±5%	1/4W	VR71	EVTS3AA00B13	AVR	1kΩB		
R1422	ERD25TJ822	Carbon	8.2kΩ	±5%	1/4W	VR141	EVTS3AA00B15	Bias Level	100kΩB		
R1423	ERD25TJ223	Carbon	22kΩ	±5%	1/4W	VR151	EVTS3AA00B15	Bias Level	100kΩB		
R1426	ERD25TJ153	Carbon	15kΩ	±5%	1/4W	SWITCHES					
R1427	ERD25TJ562	Carbon	5.6kΩ	±5%	1/4W	SW101	QSSA203	Record, Play Back Selector			
R1429	ERD25TJ103	Carbon	10kΩ	±5%	1/4W	SW102	ESD1493	Beat Proof Selector			
R1431	ERD25TJ824	Carbon	820kΩ	±5%	1/4W	SW103	TSE80130	4-Step Selector			
R1432	ERD25TJ101	Carbon	100Ω	±5%	1/4W	RL81	TSE80810	Relay			
R1433	ERD25TJ103	Carbon	10kΩ	±5%	1/4W						
R1434	ERD25TJ154	Carbon	150kΩ	±5%	1/4W						

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	
OTHER PARTS			TRANSISTORS			
JC122	XCJ6P21E-A QJA0154 QJA0156 TJS848090 TJS168040 TJS868250 TXAJT3P246 TXAJT4P111 TJT8526-1 TJT8718 TXAJT3P245 TXAJT6P052 TXAJT7P005	Head Phone Socket M-3 Jack (L, Mic./R. Mic./L, Ext. SP/R. Ext. SP) M-4 Jack (Remote) P/L, Aux, Audio Terminal 4-P Mini. Connector Plug 3-P Mini. Connector Plug 3-P Mini. Connector Ass'y 4-P Mini. Connector Ass'y 3-P Socket Housing Socket Housing Terminal 3-P Mini. Connector Ass'y 5-P Mini. Connector Ass'y 7-P Mini. Connector Ass'y	Q301 Q302 Q303 Q500 Q501 Q502 Q503	2SC828A 2SC828A 2SA564A 2SC828A 2SC828A 2SC828A 2SA564A	LED Movement LED Movement LED Movement Meter Pre.-Amp. LED Movement LED Movement LED Movement	
TNP82958-31			CAPACITORS			
CAPACITORS			C1301 C1302 C1303 C1304 C1305 C1340 C1341 C1351 C1352 C1353 C1354 C1355	ECEA1ES3R3 ECEA1ES3R3 ECKD1H102KB2 ECEA1CS100 ECCD1H151JC ECEA1ES3R3 ECEA50ZR22 ECEA1ES3R3 ECEA1ES3R3 ECKD1H102KB2 ECEA1CS100 ECCD1H151JC	Electrolytic 3.3μF Electrolytic 3.3μF Ceramic 1,000PF ±10% Electrolytic 10μF Ceramic 150PF ±5% Electrolytic 3.3μF Electrolytic 0.22μF Electrolytic 3.3μF Electrolytic 3.3μF Ceramic 1,000PF ±10% Electrolytic 10μF Ceramic 150PF ±5%	25V 25V 50V 16V 50V 25V 50V 25V 25V 50V 16V 50V
RESISTORS			RESISTORS			
R1450 R1451 R1452 R1453 C1550	ECQM05103JZ ECQM05154KZ ECQM05472JZ ECQM05273JZ ECQM05103JZ	Polyester 0.01μF ±5% Polyester 0.15μF ±10% Polyester 4,700PF ±5% Polyester 0.027μF ±5% Polyester 0.01μF ±5%	50V 50V 50V 50V 50V	R1301 R1302 R1303 R1306 R1307 R1308 R1309 R1310 R1311 R1312 R1313 R1314 R1351 R1352 R1353 R1354 R1355 R1356 R1357 R1358 R1359 R1360 R1361 R1362 R1363 R1364	Carbon 1kΩ ±5% Carbon 3.3kΩ ±5% Carbon 18kΩ ±5% Carbon 15kΩ ±5% Carbon 10kΩ ±5% Carbon 100kΩ ±5% Carbon 10kΩ ±5% Carbon 560Ω ±5% Carbon 560Ω ±5% Carbon 10kΩ ±5% Carbon 4.7kΩ ±5% Carbon 10Ω ±5% Carbon 1kΩ ±5% Carbon 3.3kΩ ±5% Carbon 18kΩ ±5% Carbon 2.2kΩ ±5% Carbon 100kΩ ±5% Carbon 15kΩ ±5% Carbon 10kΩ ±5% Carbon 100kΩ ±5% Carbon 10kΩ ±5% Carbon 560Ω ±5% Carbon 560Ω ±5% Carbon 10kΩ ±5% Carbon 4.7kΩ ±5% Carbon 10Ω ±5%	1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W 1/8W
CONTROLS			OTHER PARTS			
VR130 VR131 VR132 VR133	EVAT09C20G15 EVBV31C20A54 EVBV31C20A54 EVBV29C20A14	Balance 100kΩG Bass 50kΩA Treble 50kΩA Volume 10kΩA	TSE80132 TXAJT4P113A TXAJT4P114A	TV/Radio/Tape/Line Function Switch 4-P Mini. Connector Ass'y 4-P Mini. Connector Ass'y		
TNP82964-31H			IC			
IC130 IC131	TVSLB1405 TVSLB1405	LED Meter LED Meter	IC	VR301 VR302 LM	LED Meter Level Control 5kΩB LED Meter Level Control 5kΩb 4-P L-Type Mini. Connector Plug	

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description		
TNP82965-31H							
TUNER			UHF TUNER PARTS				
TNV17903F1F TNV87902F1F		VHF Tuner UHF Tuner	Q1	2SC2360	Transistor (RF Amp.)		
TRANSISTOR & DIODE			Q2	2SC288A-5BE	Transistor (OSC.)		
IC91 D91	AN5700 TVSRD2R4E	Channel Selector IC Zener Diode	Q3	2SC2348A	Transistor (IF Amp.)		
CAPACITORS			D1	MA320B1NR	Diode (Vari. Cap)		
C91	ECEA1CS100	Electrolytic 10μF	D2	MA320B1NR	Diode (Vari. Cap)		
C92	ECKD1H103PF2	Ceramic 0.01μF	D3	MA320B1NR	Diode (Vari. Cap)		
C93	ECKD1H222KB2	Ceramic 2,200PF	D4	TVS1SS86-02	Diode (Vari. Cap)		
C94	ECEA16Z4R7	Electrolytic 4.7F					
C95	ECKD1H102KB2	Ceramic 1,000PF	TNP82982-31H				
C96	ECKD1H103PF2	Ceramic 0.01μF	IC	FM IF Amp.			
C97	ECKD1H103PF2	Ceramic 0.01μF	AN7218		FM Multi		
C98	ECKD1H103PF2	Ceramic 0.01μF	TRANSISTORS				
C99	ECKD1H220JS	Ceramic 22PF	Q101	2SC1686	FM RF Amp.		
		±5%	Q102	2SC1359	FM Mix. (B)		
		50V	Q103	2SC1359	FM OSC. (C)		
			Q104	2SC828A	Muting		
RESISTORS			DIODES				
R91	ERD25TJ471	Carbon 470Ω	D101	TVS1S2687	FM AFC		
R92	ERD25TJ472	Carbon 4.7kΩ	D102	0A91	FM DET.		
R93	ERD25TJ334	Carbon 330kΩ	D103	0A91	FM DET.		
		±5%	D104	MA150	FM Meter		
		1/4W	D111	0A91	AM Meter		
			D112	0A91	AM DET.		
CONTROLS					COILS		
VR92	EVNK0AA00B14	Sub. Tuning 10kΩB	L1001	TLR80208	FM Antenna Coil		
VR93	EVNK0AA00B15	Sub. Tuning 100kΩB	L1002	TLR80208	FM OSC. Coil		
VR94	EVNK0AA00B14	Sub. Tuning 10kΩB	L1003	RLQY75S5	Trap Coil		
VR95	EVNK0AA00B15	Sub. Tuning 100kΩB	L1004	TLT331-999	Peaking Coil 330μH		
VR96	EVNK0AA00B15	Sub. Tuning 100kΩB	L1005	TLT270-999	Peaking Coil 27μH		
OTHER PARTS			L1081A	TLQ393J106G	Peaking coil 0.039H		
X92	EXCUVS01J	U/V Signal Separator	L1082A	TLQ393J106G	Peaking Coil 0.039H		
	TJS848060	Phono. Pin Terminal	L1101	RLQY75S5	Trap Coil		
	TJS868330	4-P L-Type Mini. Connector Plug	L1102	TLR80123	Bar Antenna Coil		
	TJS868340	5-P L-Type Mini. Connector Plug	L1103	ELA7S755C	SW RF Coil		
	TJT8529-1	6-P Socket Housing	L1104	QL02M5	AM OSC. Coil		
	TJT8718	Socket Housing Terminal	L1105	RL02M14	SW1 OSC. Coil		
			L1106	ELL7E758C	SW2 OSC Coil		
VHF TUNER PARTS					TRANSFORMERS		
Q1	2SC2348A	Transistor (RF Amp.)	T1001	RLI4M101	FM IF Trans.		
Q2	2SC2348B	Transistor (Mix.)	T1002	RLI4M504	FM DET. Trans.		
Q3	2SC1215	Transistor (OSC.)	T1003	RLI4M506	FM DET. Trans.		
D1	MA56	Diode (Switching)	T1101	RLI2M201	AM IF Trans.		
D2	MA56	Diode (Switching)	T1102	RLI2M202	AM IF Trans.		
D3	MA320GINR	Diode (Vari. Cap.)	T1103	RLI2M402	AM DET. Trans.		
D4	MA320GINR	Diode (Vari. Cap.)					
D5	MA56	Diode (Switching)					
D6	MA56	Diode (Switching)					
D7	MA56	Diode (Switching)					
D8	MA320GINR	Diode (Vari. Cap.)					
CAPACITORS					CAPACITORS		
C1001	PVC22K20T1LG	Poly Variable	C1001	PVC22K20T1LG	Poly Variable		
C1004	ECCD1H270JC2	Ceramic 27PF	C1004	ECCD1H270JC2	±5% 50V		
C1005	ECKD1H103PF2	Ceramic 0.01μF	C1005	ECKD1H103PF2	+100% -0% 50V		
C1006	ECCD1H050CC	Ceramic 5PF	C1006	ECCD1H050CC	±0.25PF 50V		
C1007	ECCD1H180JC	Ceramic 18PF	C1007	ECCD1H180JC	±5% 50V		
C1008	ECCD1H050CC	Ceramic 5PF	C1008	ECCD1H050CC	±0.25PF 50V		
C1009	ECCD1H390JC2	Ceramic 39PF	C1009	ECCD1H390JC2	±5% 50V		
C1010	ECKD1H103KB	Ceramic 0.01μF	C1010	ECKD1H103KB	±10% 50V		
C1011	ECKD1H103PF2	Ceramic 0.01μF	C1011	ECKD1H103PF2	+100% -0% 50V		
C1012	ECCD1H050CS	Ceramic 5PF	C1012	ECCD1H050CS	±0.25PF 50V		
C1013	ECCD1H080DS	Ceramic 8PF	C1013	ECCD1H080DS	±0.5PF 50V		
C1014	ECCD1H390JS	Ceramic 39PF	C1014	ECCD1H390JS	±5% 50V		

Ref. No.	Part No.	Description				Ref. No.	Part No.	Description			
C1015	ECCD1H120JS	Ceramic	12PF	±5%	50V	C1116	ECKD1H223PF2	Ceramic	0.022μF	+100%	50V
C1017	ECCD1H060CS	Ceramic	6PF	±0.25PF	50V	C1131	ECEA1AS471	Electrolytic	470μF	-0%	10V
C1018	ECKD1H223PF2	Ceramic	0.022μF	+100%	50V	C1132	ECKD1H102KB2	Ceramic	1,000PF	±10%	50V
C1019	ECKD1H331KB	Ceramic	330PF	±10%	50V	C1133	ECEA1HS010	Electrolytic	1μF	-0%	50V
C1020	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	C1134	ECEA1CS100	Electrolytic	10μF	+100%	16V
				-0%		C1135	ECKD1H223PF2	Ceramic	0.022μF	-0%	50V
C1050	ECKD1H102KB2	Ceramic	1,000PF	±10%	50V	C1136	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V
C1051	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	C1137	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V
C1052	ECKD1H223PF2	Ceramic	0.022μF	+100%	50V	C1138	ECKD1H223PF2	Ceramic	0.022μF	+100%	50V
C1053	ECKD1H223PF2	Ceramic	0.022μF	+100%	50V	C1139	ECQM05683JZ	Polyester	0.068μF	±5%	50V
C1054	ECKD1H331KB	Ceramic	330PF	±10%	50V	C1140	ECCD1H270J	Ceramic	27PF	±5%	50V
C1055	ECEA1ES4R7	Electrolytic	4.7μF	-0%	25V	C1141	ECKD1H223PF2	Ceramic	0.022μF	+100%	50V
C1056	ECCD1H271J	Ceramic	270PF	±5%	50V	C1180	ECEA1AS101	Electrolytic	100μF	-0%	10V
C1056	ECCD1H271J	Ceramic	270PF	±5%	50V			RESISTORS			
C1057	ECCD1H271J	Ceramic	270PF	±5%	50V	R1001	ERD10TJ104	Carbon	100kΩ	±5%	1/8W
C1059	ECEA1HSR47	Electrolytic	0.47μF	-0%	50V	R1002	ERD10TJ270	Carbon	27Ω	±5%	1/8W
C1060	ECEA1ES4R7	Electrolytic	4.7μF	-0%	25V	R1003	ERD10TJ151	Carbon	150Ω	±5%	1/8W
C1061	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	R1004	ERD10TJ474	Carbon	470kΩ	±5%	1/8W
C1062	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	R1005	ERD10TJ471	Carbon	470Ω	±5%	1/8W
C1081	ECEA1CS330	Electrolytic	33μF	-0%	16V	R1006	ERD10TJ751	Carbon	750Ω	±5%	1/8W
C1083	ECQM05153JZ	Polyester	0.015μF	±5%	50V	R1007	ERD10TJ104	Carbon	100kΩ	±5%	1/8W
C1084	ECEA1ES4R7	Electrolytic	4.7μF	-0%	25V	R1009	ERD10TJ122	Carbon	1.2kΩ	±5%	1/8W
C1085	ECQM05182JZ	Polyester	1,800PF	±5%	50V	R1010	ERD10TJ102	Carbon	1kΩ	±5%	1/8W
C1086	ECQM05153JZ	Polyester	0.015μF	±5%	50V	R1011	ERD10TJ104	Carbon	100kΩ	±5%	1/8W
C1087	ECEA1ES4R7	Electrolytic	4.7μF	-0%	25V	R1012	ERD10TJ473	Carbon	47kΩ	±5%	1/8W
C1088	ECQM05182JZ	Polyester	1,800PF	±5%	50V	R1051	ERD10TJ101	Carbon	100Ω	±5%	1/8W
C1089	ECFWD152KAY	Ceramic	1,500PF	±10%	25V	R1052	ERD10TH102	Carbon	1kΩ	±5%	1/8W
C1090	ECQM05332JZ	Polyester	3,300PF	±5%	50V	R1053	ERD10TJ470	Carbon	47Ω	±5%	1/8W
C1091	ECFWD152KAY	Ceramic	1,500PF	±10%	25V	R1054	ERD10TJ102	Carbon	1kΩ	±5%	1/8W
C1092	ECQM05332JZ	Polyester	3,300PF	±5%	50V	R1055	ERD10TJ102	Carbon	1kΩ	±5%	1/8W
C1093	ECQS1331JWT	Styrol	330PF	±5%	100V	R1056	ERD10TJ682	Carbon	6.8kΩ	±5%	1/8W
C1094	ECEA50ZR22	Electrolytic	0.22μF	-0%	50V	R1057	ERD10TJ822	Carbon	8.2kΩ	±5%	1/8W
C1095	ECEA50ZR47	Electrolytic	0.47μF	-0%	50V	R1058	ERD10TJ821	Carbon	820Ω	±5%	1/8W
C1096	ECEA1CS100	Electrolytic	10μF	-0%	16V	R1059	ERD10TJ153	Carbon	15kΩ	±5%	1/8W
C1097	ECEA1HS010	Electrolytic	1μF	-0%	50V						
C1098	ECQM05473JZ	Polyester	0.047μF	±5%	50V	R1062	ERD10TJ102	Carbon	1kΩ	±5%	1/8W
C1100	ECCD1H040CC	Ceramic	4PF	±0.25PF	50V	R1063	ERD10TJ104	Carbon	100kΩ	±5%	1/8W
C1101	ECCD1H560JP	Ceramic	56PF	±5%	50V	R1081	ERD10TJ183	Carbon	18kΩ	±5%	1/8W
C1102	QCV2120	Trimmer				R1082	ERD10TJ473	Carbon	47kΩ	±5%	1/8W
C1103						R1083	ERD10TJ823	Carbon	82kΩ	±5%	1/8W
C1104	ECCD1H470JPN	Ceramic	47PF	±5%	50V	R1084	ERD10TJ272	Carbon	2.7kΩ	±5%	1/8W
						R1085	ERD10TJ272	Carbon	2.7kΩ	±5%	1/8W
C1107	ECCD1H271JC	Ceramic	270PF	±5%	50V	R1086	ERD10TJ561	Carbon	560Ω	±5%	1/8W
C1108	ECCD1H151JC	Ceramic	150PF	±5%	50V	R1087	ERD10TJ682	Carbon	6.8kΩ	±5%	1/8W
C1109	ECCD1H150JC	Ceramic	15PF	±5%	50V	R1088	ERD10TJ332	Carbon	3.3kΩ	±5%	1/8W
C1110	ECV1ZW10X53N	Variable				R1090	ERD10TJ682	Carbon	6.8kΩ	±5%	1/8W
C1111	ECV1ZW10X53N	Variable				R1091	ERD10TJ332	Carbon	3.3kΩ	±5%	1/8W
C1112	ECQS136JWT	Styrol	360PF	±5%	100V	R1093	ERD10TJ273	Carbon	27kΩ	±5%	1/8W
C1113	ECCD1H070CC	Ceramic	7PF	±0.25PF	50V						
C1114	ECQS1472JWT	Styrol	4,200PF	±5%	100V	R1094	ERD10TJ102	Carbon	1kΩ	±5%	1/8W
C1115	ECKD1H103PF2	Ceramic	0.01μF	+100%	50V	R1095	ERD10TJ682	Carbon	6.8kΩ	±5%	1/8W
				-0%							

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R1101	ERD10TJ270	Carbon 27Ω ± 5% 1/8W	M29	QBL2900C	Erase Safety Lever
R1102	ERD10TJ391	Carbon 390Ω ± 5% 1/8W	M30	QBC1193A	Erase Safety Lever Spring
R1103	ERD10TJ103	Carbon 10kΩ ± 5% 1/8W	M31	QBN1479	Idler Spring
R1104	ERD10TJ270	Carbon 27Ω ± 5% 1/8W	M32	QBN1488	Pressure Roller Spring
R1130	ERD10TJ470	Carbon 47Ω ± 5% 1/8W	M33	QXI0088	Idler Lever Ass'y
R1131	ERD10TJ473	Carbon 47kΩ ± 5% 1/8W	M34	QXR0553	Pause Rod Ass'y
R1132	ERD10TJ103	Carbon 10kΩ ± 5% 1/8W	M35	QXR0503	Record Rod Ass'y
R1133	ERD10TJ682	Carbon 6.8kΩ ± 5% 1/8W	M36	QGO1227C	Record Button
R1134	ERD10TJ822	Carbon 8.2kΩ ± 5% 1/8W	M37	QXR0549	Playback Rod Ass'y
R1135	ERD10TJ153	Carbon 15kΩ ± 5% 1/8W	M38	QXR0551	Rewind Rod Ass'y
R1180	ERD25TJ471	Carbon 470Ω ± 5% 1/4W	M39	QXR0550	Fast Forward Rod Ass'y
CONTROLS					
VR101	EVNK4AA00B14	Freq. Adj. 10kΩB	M40	QXR0548	Stop Rod Ass'y
VR102	EVNK4AA00B53	Separation Adj. 5kΩB	M41	QXR0552	Elect Rod Ass'y
			M42	QXD0054B	Takeup Reel Table
C-R COMBINATIONS					
X1001	TXCFF88108W	FM Band Pass Filter	M43	QBC1273	Back Tention Spring
X1002	TFCS10R7M-1	10.7MHZ Cerap	M44	QDR1103	Supply Reel Table
			M45A	XSN26+6	Screw
			M45B	XWA26B	Washer
S0	TSE80331	LW Selector Switch	M46	QML2904B	Pause Lever
S1	TSE80331	MW Selector Switch	M47	QML2912	FF Operation Lever
S2	TSE80331	SW Selector Switch	M48	QBN1477A	FF Arm Spring
S3	TSE80331	FM Selector Switch	M49	QXG1023B	FF Gear Arm Ass'y
	XAM64C120	Pilot Lamp	M50	QBP1664	Operation Rod Spring
	XAM64C260	Pilot Lamp	M51	QMR1473A	Lock Rod
	TJS868250	3-P Mini. Connector Plug	M52	QML2905B	Switch Arm
	TJS868270	5-P Mini. Connector Plug	M55	QX L0980B	Audio-Stop Drive Lever Ass'y
	TXAJT5POS2	7-P Mini. Connector Ass'y	M55-1	QBT1489E	Audio Stop Spring
	TXAJT7P006	7-P Mini. Connector Ass'y			
QUN 1845 CASSETTE RECORD					
M1	XTN26+6B	Screw	M56	QML2902	Eject Arm
M3	XSN26+3	Screw	M57	QBT1773DM	Eject Arm Spring
M4	QMG0009	Tape Guide	M58	MMT5ST9RA	Motor
M5	XSN26+12	Screw	M59	QBG1539	Motor Cushion
M6	QBT1813E	Erase Head Rod :Spring	M60	QHQ1223B	Motor Holding Screw
M7	QMR1474A	Erase Head Rod	M61	QXP0153B	Motor Pulley Ass'y
M8	XSN2+8	Screw	M63	QMA2676B	Belt Guide
M9	QBC1278A	Head Spring	M64	QDB0219	Flywheel Belt
M10	QBN1481	Play Spring	M65	QBW2049A	Poly. Slider
M11	XSN26+6	Screw	M66	QXF0113C	Flywheel
M12	QMZ166C	Head Spacer	M67	QXH0218B	Flywheel Retainer
M13	QXK168/B	Head Base Plate	M68	XTN3+15B	Erase Safety Lever
M14	XUC2FT	Stop Ring	M96	QBP1662	Lock Rod Spring
M15	QBN1478A	Audio-Stop Detector Spring	S5	QSB0186MA	Leaf Switch (Motor ON/OFF)
M16	QXL0982	Audio-Stop Detector Lever	E1	QWY4113Z	Record/Playback Head
M17	XUC3FT	Stop Ring	E2	QWY21292	Erase Head
M18	QXL0979A	Pressure Roller Ass'y		QEF0611	3-P Mini. Connector Ass'y (Record Head)
M19	QBP1659A	Head Plate Pressuer Plate		QEF0612	3-P Mini. Connector Ass'y (Erase Head)
M20	QDK1017	Steel Ball			
M21	QDC0084	Tape Counter			
M22	QDB0220	Counter Belt			
M23	XTN3+12B	Screw			
M24	QMZ1167B	Counter Table			
M25	XTN3+10B	Screw			
M26	XUB4FT	Circlip			
M27	QBN1480A	Pause Lock Spring			
M28	QML2898	Pause Lock Plate			